Georgia Department of Transportation

Interoffice Memo
Office of Design Policy & Support

DATE: **10/23/2018**

FILE: P.I.#s 0015670 & 0016000
Banks Counties / GDOT District 1 - Gainesville
Raised median & Pedestrian Improvements along SR 15

FROM: for Brent Story, State Design Policy Engineer

TO: SEE DISTRIBUTION

SUBJECT: **APPROVED CONCEPT REPORT**

Attached is the approved Concept Report for the above subject project.

Attachment

Distribution:

Hiral Patel, Director of Engineering
Joe Carpenter, Director of P3
Albert Shelby, Director of Program Delivery
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Eric Conklin, State Transportation Data Administrator
Attn: Systems & Classification Branch
Benny Walden, Statewide Location Bureau Chief
Andy Casey, State Roadway Design Engineer
Attn: Justin Lott, District Design Engineer
Ed David Adams, State Safety Program Manager
Brent Cook, District Engineer
Brandon Kirby, District Preconstruction Engineer
Robby Oliver, District Utilities Manager
Heidi Schneider, Project Manager
BOARD MEMBER - 9th Congressional District

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA
LIMITED SCOPE PROJECT CONCEPT REPORT

Project Type: Safety
P.I. Number: 0015670 & 0016000
GDOT District: 1
County: Banks
Federal Route Number: 441
State Route Number: 15
Project Number: N/A

These two projects consist of adding a raised median along the corridor of SR 15 from just north of the Jackson County line to Faulkner Rd. Other improvements include: realigning and extending Steven B Tanger Blvd to SR 15; realigning Faulkner Rd and access road (formerly Steven B Tanger Blvd), and installing pedestrian crosswalks, providing ADA ramps and installing supplemental signal heads on SR 15/US 441.

** Report updated on 10-8-2018 to address review comments.

Submitted for approval:

Scott Shelton, PE, Atkins — 09/10/2018 Date

Kimberly W. Nesbitt — 9-14-18 Date
State Program Delivery Administrator

Heidi Schneider — 9/14/18 Date
GDOT Project Manager

* Recommendations on file

Recommendation for approval:

* Eric Duff/KLP — 9-14-2018 Date
State Environmental Administrator

* Andrew Pearson/KLP — 9-25-2018 Date
State Traffic Engineer

* Brandon Kirby/KLP — 9-20-2018 Date
District Engineer

☐ MPO Area: This project is consistent with the MPO adopted Regional Transportation Plan (RTP)/Long Range Transportation Plan (LRTP).

☒ Rural Area: This project is consistent with the goals outlined in the Statewide Transportation Plan (SWTP) and/or is included in the State Transportation Improvement Program (STIP).

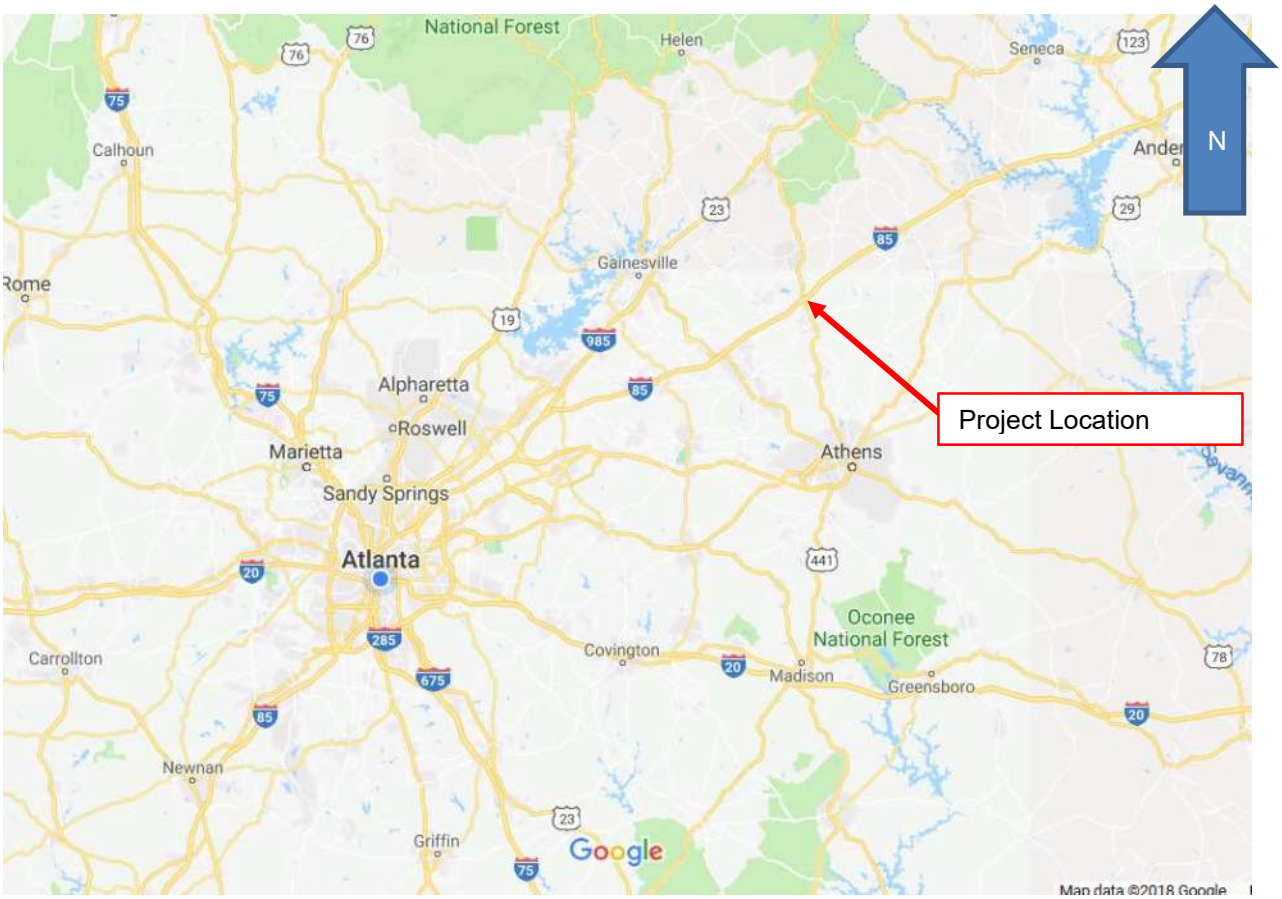
R. Paul Jarrett — 9-25-18 Date
State Transportation Planning Administrator

Approval:

Concur: — 10-10-18 Date
GDOT Director of Engineering

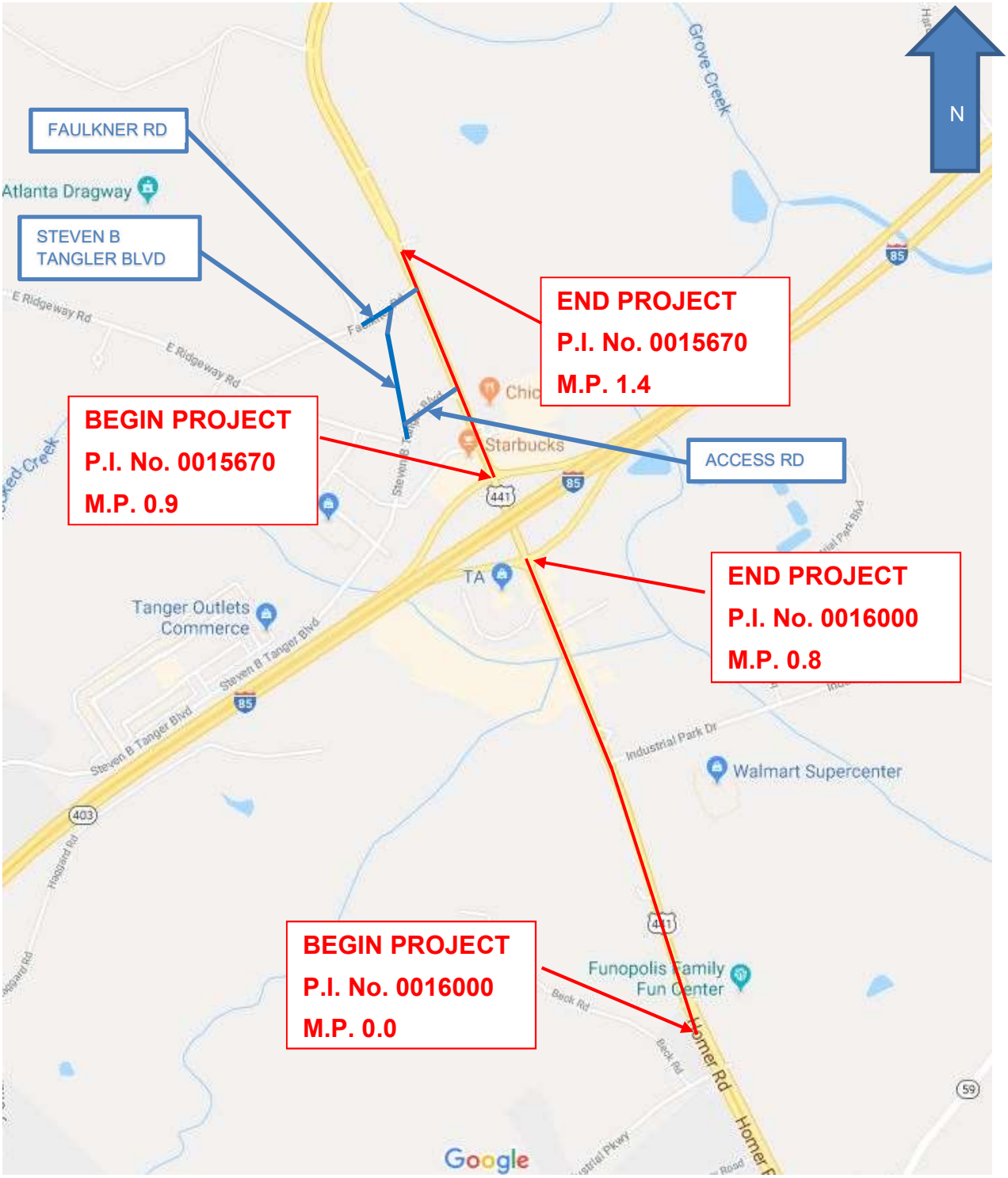
Approve: Margaret B. Pickle — 10/23/18 Date
GDOT Chief Engineer

PROJECT LOCATION MAP



NOT TO SCALE

PROJECT LOCATION MAP



NOT TO SCALE

PLANNING & BACKGROUND DATA

Project Justification Statement (Office of Traffic Operations):
The purpose of the proposed projects are to reduce the potential for crashes throughout the corridor of SR 15/US 441 between the Jackson County line and Faulkner Road (CR 18) near Commerce, Georgia in Banks County. A traffic engineering study of the corridor was prepared in August 2017 to determine the most appropriate type of improvements to address the reported crash history throughout this corridor. Based on the findings of the study, it was determined that improvements including realigning and extending Steven B Tanger Blvd to SR 15, realigning Faulkner Rd and access road (formerly Steven B Tanger Blvd), and installing a raised median, restriping crosswalks, and installing reflective backplates at signalized intersections on SR 15/US 441, should be performed. These improvements address the operational performance and reduce the potential for crashes.

Existing conditions:
SR 15/US 441 is a 5-lane roadway with a center two-way left-turn lane (LTL). The roadway features curb and gutter with grassed shoulders and sidewalks. The facility has a posted speed limit of 55 miles per hour (mph) south of the intersection with Dallas Drive and 45 mph north of Dallas Drive. This section of SR 15/US 441 is characterized by a high density of commercial development, resulting in a relatively high density of driveways and unsignalized offset intersections to provide access to the surrounding businesses. Additionally, continuous exclusive right-turn lanes are provided throughout most of the corridor to reduce potential traffic conflicts related to vehicles accessing the adjacent developments. There are five signalized intersections throughout the corridor: Dallas Drive, Pottery Factory Drive, I-85 Northbound Ramps, I-85 Southbound Ramps, and Steven B Tanger Boulevard. The remaining intersections within the project corridor are unsignalized and controlled by stop signs on the minor approaches.

Steven B Tanger Blvd is a 4-lane roadway with curb and gutter and grassed shoulders. It has a posted speed limit of 35 miles per hour, while Faulkner Rd is a 2-lane road with grassed shoulders and 45 miles per hour posted speed.

Other projects in the area:
PI 0014076 – Bridge replacement over CR 296/ Ridgeway Church Road along I-85 (CST 2022)
PI 0015247 – Widening of I-85 from N of SR 98/Jackson County to N of SR 15/Banks County (CST 2035)
PI 0015248 – Widening of I-85 from N of SR 15/US 441 Banks County to N of SR 63 (CST 2035)

MPO: N/A - not in an MPO **TIP #:** N/A

Congressional District(s): 9

Federal Oversight: ☐PoDI ☒Exempt ☐State Funded ☐Other

Projected Traffic: AADT 24 HR T: 15%
Current Year (2016): 21,200 (SR 15/US 441) 6,190 (Steven B Tanger Blvd)
PI 0015670 Open Year (2021): TBD Design Year (2041): TBD
PI 0016000 Open Year (TBD): TBD Design Year (TBD): TBD
Traffic Projections Performed by: Obtained from GDOT Traffic Analysis and Data Application (TADA)
Date approved by the GDOT Office of Planning: **Traffic Requested September 12, 2018**
Anticipated Approval date November 1, 2018

Functional Classification (Mainline): Urban Principal Arterial (SR 15/US441)
Local Urban (Steven B Tanger Blvd, Access Road)
Local Road (Faulkner Road)

Complete Streets - Bicycle, Pedestrian, and/or Transit Standards Warrants:

Warrants met: ☐None ☐Bicycle ☒ Pedestrian ☐Transit

Pavement Evaluation and Recommendations

Initial Pavement Evaluation Summary Report Required? ☐No ☒Yes

Feasible Pavement Alternatives: ☒HMA ☐PCC ☐HMA & PCC

(note: The Initial Pavement Evaluation Summary is in progress)

DESIGN AND STRUCTURAL

Description of Proposed Project:

The two proposed projects are located along the SR 15/US 441 corridor from the Jackson County line to Faulkner Road (CR 18) in Banks County between approximately MP 0.0 and MP 1.4. The corridor starts approximately 1 mile north of Commerce, Georgia, runs northwest and crosses over I-85, and ends 0.6 miles east of the Tanger Outlets. P.I. Number 0016000 project would add a raised median (concrete), restriping, cross walks and ADA ramps from Jackson County line to just south of the bridge over I-85 with a project length of 0.8 miles. Signals along the corridor would be upgraded. P.I. Number 0015670 project would include the following improvements: realignment and extension of Steven B Tanger Blvd to SR 15/US 441, realignment of Faulkner Rd and Access Rd (former Steven B Tanger Blvd), and add raised medians (concrete), restriping crosswalks, and ADA ramps on SR 15/US 441 from just north of the bridge over I-85 to Faulkner Road with a project length of 0.5 miles. Signals along the corridor would be upgraded.

Mainline Design Features:

SR 15/US 441 (P.I. No. 0015670 & 0016000)

Feature	Existing	Policy	Proposed
Typical Section			
- Number of Lanes	4	**N/A**	4
- **Lane Width(s)**	**12'**	**11'-12'**	**11'**
- **Median Width & Type**	**14' Flush**	**20' Raised**	**18' Raised**
- **Border Area Width** *(urban shoulder)*	**12'**	**10' – 16'**	**Varies 12' Typical**
- **Outside Shoulder Slope**	**Unknown**	**2% max**	**2% max**
- **Inside Shoulder Width**	**N/A**	**N/A**	**N/A**
- **Sidewalks**	**5'**	**5'**	**5'**
- Auxiliary Lanes	**12'**	**N/A**	**12'**
- **Bike Accommodations**	**N/A**	**N/A**	**N/A**
Posted Speed	45 mph	**N/A**	45 mph
Design Speed			**45 mph**
Minimum Horizontal Curve Radius	**N/A**	**643'**	**5729'**
Maximum Superelevation Rate	**Unknown**	**4%**	**4%**
Maximum Grade	**Unknown**	**7%**	**5%**
Access Control	Permitted	**N/A**	Permitted
Design Vehicle	WB-40	**WB-40**	WB-67
Pavement Type	Asphalt	**N/A**	Asphalt

*According to current GDOT design policy if applicable

Steven B Tanger Boulevard (P.I. No. 0015670)

Feature	Existing	Policy	Proposed
Typical Section			
- Number of Lanes	4	**N/A**	4
- **Lane Width(s)**	**12'**	**10'-12'**	**12'**
- **Median Width & Type**	**N/A**	**N/A**	**N/A**
- **Border Area Width** *(urban shoulder)*	**12'**	**10'-16'**	**12'**
- **Outside Shoulder Slope**	**Unknown**	**2% max**	**2% max**
- **Inside Shoulder Width**	**N/A**	**N/A**	**N/A**
- **Sidewalks**	**N/A**	**5'**	**5'**
- Auxiliary Lanes	N/A	**N/A**	N/A
- **Bike Accommodations**	**N/A**	**N/A**	**N/A**
Posted Speed	35 mph	**N/A**	35 mph
Design Speed			**35 mph**
Minimum Horizontal Curve Radius	**N/A**	**371'**	**380'**
Maximum Superelevation Rate	**Unknown**	**4%**	**4%**
Maximum Grade	**Unknown**	**10%**	**4.5%**
Access Control	Permitted	**N/A**	Permitted
Design Vehicle	SU	**SU**	WB-62
Pavement Type	Asphalt	**N/A**	Asphalt

*According to current GDOT design policy if applicable

Faulkner Road (P.I. No. 0015670)

Feature	Existing	Policy	Proposed
Typical Section			
- Number of Lanes	2	**N/A**	2
- **Lane Width(s)**	**10'**	**11'-12'**	**12'**
- **Median Width & Type**	**N/A**	**N/A**	**N/A**
- **Border Area Width** *(rural shoulder)* - *(urban shoulder)*	**2'** **N/A**	**8' (2' paved)** **10'-16'**	**8' (2' paved)** **12'**
- **Outside Shoulder Slope**	**Unknown**	**2% max**	**2% max**
- **Inside Shoulder Width**	**N/A**	**N/A**	**N/A**
- **Sidewalks**	**N/A**	**5'**	**5'**
- Auxiliary Lanes	N/A	**N/A**	N/A
- **Bike Accommodations**	**N/A**	**N/A**	**N/A**
Posted Speed	45 mph	**N/A**	45 mph
Design Speed			**45 mph**
Minimum Horizontal Curve Radius	**N/A**	**643'**	**750'**
Maximum Superelevation Rate	**Unknown**	**6%**	**4%**
Maximum Grade	**Unknown**	**9%**	**5%**
Access Control	Permitted	**N/A**	Permitted
Design Vehicle	SU	**SU**	SU-40
Pavement Type	Asphalt	**N/A**	Asphalt

*According to current GDOT design policy if applicable

Access Road (P.I. No. 015670)

Feature	Existing	Policy	Proposed
Typical Section			
- Number of Lanes	4	**N/A**	2
- **Lane Width(s)**	**12'**	**10'-12'**	**12'**
- **Median Width & Type**	**N/A**	**N/A**	**N/A**
- **Border Area Width** *(urban shoulder)*	**12'**	**10'-16'**	**12'**
- **Outside Shoulder Slope**	**Unknown**	**2% max**	**2% max**
- **Inside Shoulder Width**	**N/A**	**N/A**	**N/A**
- **Sidewalks**	**None**	**5'**	**5'**
- Auxiliary Lanes	N/A	**N/A**	N/A
- **Bike Accommodations**	**N/A**	**N/A**	**N/A**
Posted Speed	35 mph	**N/A**	35 mph
Design Speed			**35 mph**
Minimum Horizontal Curve Radius	**N/A**	**371'**	**380'**
Maximum Superelevation Rate	**Unknown**	**4%**	**4%**
Maximum Grade	**Unknown**	**10%**	**4%**
Access Control	Permitted	**N/A**	Permitted
Design Vehicle	SU	**SU**	WB-62
Pavement Type	Asphalt	**N/A**	Asphalt

*According to current GDOT design policy if applicable

Is the project located on a NHS roadway? ☐ No ☒ Yes

Design Exceptions/Design Variances to FHWA or GDOT Controlling Criteria anticipated: Potential horizontal curvature on Steven B Tanger Blvd. Designer will confirm in preliminary design.

Design Variances to GDOT Standard Criteria anticipated: Potential shoulder width on Faulkner Road. Designer will confirm in preliminary design. A design variance is anticipated for the median width. Current policy indicates a 20 foot median is required, this project is only proposing a 18' wide median. Several roads/driveways on each side of I-85 are closer than the minimum 300 ft allowed for access control, a design variance is anticipated for these locations.

Lighting required: ☒ No ☐ Yes

Off-site Detours Anticipated: ☒ No ☐ Undetermined ☐ Yes

Transportation Management Plan [TMP] Required: ☐ No ☒ Yes
If Yes: Project classified as: ☒ Non-Significant
TMP Components Anticipated: ☒ TTC

INTERCHANGES AND INTERSECTIONS

Major Interchanges/Intersections:
SR 15 at Dallas Drive
SR 15 at Pottery Factory Drive
SR 15 at I-85 NB Ramp
SR 15 at I-85 SB Ramp
SR 15 at Steven B Tanger Boulevard (This signal will be removed as part of this project)
SR 15 at Faulkner Road (This signal will be added as part of this project)

Intersection Control Evaluation (ICE) Required: ☐ No ☒ Yes

(ICE reports for the intersection of SR 15/US441 and Pottery Factory Drive, and at the intersection of SR 15/US 441 and Industrial Park Drive are not being included in the Concept Report. It's anticipated that the traffic along the project corridor will be collected this fall. Once the traffic numbers have been approvaed, the ICE Reports for both intersections will be completed.)

Roundabout Peer Review Required: ☒ No ☐ Yes ☐ Completed – Date:

UTILITY AND PROPERTY

Railroad Involvement: N/A

Utility Involvements:
Banks County Water System
City of Commerce Fiber/Internet
City of Commerce Water
City of Commerce Sewer
City of Commerce Gas
Comcast CATV
Georgia Power – Distribution
Georgia Power - Transmission
Jackson EMC
Windstream Communications Telecommunications

SUE Required: ☐ No ☒Yes

Public Interest Determination Policy and Procedure recommended? ☒ No ☐ Yes

Right-of-Way:

PI 0015670

Existing width: 100 ft. Proposed width: 100 ft.
Required Right-of-Way anticipated: ☒ None ☐ Yes ☐ Undetermined
Easements anticipated: ☒ None ☐ Temporary ☐ Permanent ☐ Utility ☐ Other

Anticipated total number of impacted parcels: 0
Displacements anticipated: Businesses: 0
Residences: 0
Other: 0
Total Displacements: 0

PI 0016000

Existing width: 100 ft. Proposed width: 150 ft.
Required Right-of-Way anticipated: ☐ None ☒ Yes ☐ Undetermined
Easements anticipated: ☐ None ☒ Temporary ☐ Permanent ☐ Utility ☐ Other

Anticipated total number of impacted parcels: 6
Displacements anticipated: Businesses: 0
Residences: 0
Other: 0
Total Displacements: 0

Impacts to USACE property anticipated? ☒ No ☐ Yes ☐ Undetermined

CONTEXT SENSITIVE SOLUTIONS

Issues of Concern: N/A

Context Sensitive Solutions Proposed: N/A

ENVIRONMENTAL AND PERMITS

Anticipated Environmental Document:

NEPA:	☐ PCE	☐ CE	☐ EA-FONSI
GEPA:	☐ Type A	☐ Type B	☒ None

Level of Environmental Analysis:

☒ The environmental considerations noted below are based on preliminary desktop or screening level environmental analysis and are subject to revision after the completion of resource identification, delineation, and agency concurrence.

☐ The environmental considerations noted below are based on the completion of resource identification, delineation, and agency concurrence.

Water Quality Requirements:
MS4 Compliance – Is the project located in an MS4 area? ☒ No ☐ Yes

Is Non-MS4 water quality mitigation anticipated? ☒ No ☐ Yes

Environmental Permits, Variances, Commitments, and Coordination anticipated: Coordination may need to take place with Atlanta Dragway, as project construction could lead to traffic disruptions.

Air Quality:

Is the project located in an Ozone Non-attainment area?	☒ No	☐ Yes
Carbon Monoxide hotspot analysis required?	☒ No	☐ Yes

NEPA/GEPA Comments & Information:

NEPA/GEPA: There are several gas stations within the project cooridor. Should ROW be required from any of the gas stations located within the corridor, a Phase I and II Environmental Site Assessment would be needed.

Ecology: According to desktop resources, there appears to be one stream, Crooked Creek, located south of the I-85 interchange. However, a field visit would be required to identify potential waters beyond the desktop search. Further, protected species may have habitat in the area but any identification of protected species or habitat requires a field visit. A permit could be needed if the tributary is affected/encroached upon by the construction of pedestrian facilities and corridor improvements.

History: According to Georgia's Natural, Archaeological, and Historic Resources GIS (GNAHRGIS) site, there are properties greater than fifty years of age within the project area. A field survey will be needed to determine if these properties are considered eligible and if there are additional historic resources in the area beyond the desktop search.

Archeology: According to a desktop survey, there are no cemeteries present within the project area. A field survey will be needed to determine if additional archaeological resources exist in the area.

Air Quality: Due to the project being limited to pedestrian facilities and corridor improvements, no CO analysis would be required.

Noise Effects: Due to the project being limited to pedestrian facilities and corridor improvements, the proposed project would be a Type III noise project.

Public Involvement: A PIOH will be held in 2019 with local residents and business owners to explain the median and changes to commercial driveways.

COORDINATION, ACTIVITIES, RESPONSIBILITIES, AND COSTS

Is Federal Aviation Administration (FAA) coordination anticipated? ☒ No ☐ Yes

Project Meetings: Concept Team Meeting – August 28, 2018

Other coordination to date:

Project Activity	Party Responsible for Performing Task(s)
Concept Development	Atkins/GDOT
Design	GDOT
Right-of-Way Acquisition	GDOT or Local Sponsor
Utility Coordination (Preconstruction)	GDOT District
Utility Relocation (Construction)	Utility Owner
Letting to Contract	GDOT
Construction Supervision	GDOT
Providing Material Pits	Contractor
Providing Detours	Contractor
Environmental Studies, Documents, & Permits	GDOT
Environmental Mitigation	GDOT
Construction Inspection & Materials Testing	GDOT

Project Cost Estimate and Funding Responsibilities:

	PE Activities					
	PE Funding	Section 404 Mitigation	ROW	Reimbursable Utilities	CST*	Total Cost
Funded By	GDOT	N/A	GDOT	GDOT	GDOT	
$ Amount PI 0015670	$350,000	N/A	N/A	$202,000	$4,863,050.80	$5,415,050.80
$ Amount PI 0016000	$125,000	N/A	TBD**	$0	$2,179,370.49	$2,304,370.49
Date of Estimate	2017	N/A	TBD**	08/23/18	09/07/18	

*CST Cost includes: Construction, Engineering and Inspection, Contingencies and Liquid AC Cost Adjustment.
** ROW estimate has been requested for this project as of September 10, 2018.

ALTERNATIVES DISCUSSION

PI 0015670

Preferred Alternative: Add raised median, restripe, upgrade signals along SR 15/US 441. Extension of Steven B Tanger Blvd and realignment of Faulkner Road and Access Road.			
Estimated Property Impacts:	**0**	**Estimated Total Cost:**	**$5,415,050.80**
Estimated ROW Cost:	**$0**	**Estimated CST Time:**	**12 months**
Rationale: Eliminates the excess crossing movements from the project corridor and helps the functionality of the new tie in with the extension of Steven B Tanger.			

No-Build Alternative: Maintain the existing layout of the corridor.			
Estimated Property Impacts:	**0**	**Estimated Total Cost:**	**$0**
Estimated ROW Cost:	**$0**	**Estimated CST Time:**	**N/A**
Rationale: Eliminated as it does not support the project justification statement.			

PI 0016000

Preferred Alternative: Add raised median, restripe, upgrade signals along SR 15/US 441			
Estimated Property Impacts:	**6**	**Estimated Total Cost:**	**$2,304,370.49**
Estimated ROW Cost:	**TBD**	**Estimated CST Time:**	**12 months**
Rationale: Eliminates the excess crossing movements from the project .			

No-Build Alternative: Maintain the existing layout of the corridor.			
Estimated Property Impacts:	**0**	**Estimated Total Cost:**	**$0**
Estimated ROW Cost:	**$0**	**Estimated CST Time:**	**N/A**
Rationale: Eliminated as it does not support the project justification statement.			

Additional Comments/ Information:

LIST OF ATTACHMENTS/SUPPORTING DATA

1. Concept Layout
2. Typical sections
3. Cost Estimates
4. Concept Team Meeting Minutes
5. ICE Reports & Waivers
6. TE Study

Concept Layout

137 ACRES LLC
100 POTTERY RD
PARCEL #: B55 006
COMMERCIAL

NORTHEAST GEORGIA BANK
30990 HWY 441
PARCEL #: B55 010A
COMMERCIAL

LITTLE LATIN PLAZA LLC
108 DALLAS DR
PARCEL #: B55 010
COMMERCIAL

SAHARSH LLC
30976 HWY 441
PARCEL #: B55 009
COMMERCIAL

ASEEM INC A GEORGIA CORP
30934 HWY 441
PARCEL #: B55 008
COMMERCIAL

BEGIN PROJECT
P.I. No. 0016000

EXIST ROW

2' WIDE
CONC MEDIAN
12' WIDE
LEFT TURN LANE

235' STORAGE

100' TAPER

14' WIDE
CONCRETE MEDIAN

SR 15 / US 441

EXIST ROW

REQ'D R/W

CONSTRUCTED ISLAND

EXIST ROW

DRIVEWAY ESMT

ECHOLS PROPERTIES LLC
40081 HWY 441
PARCEL #: B55 018
COMMERCIAL

EXIST ROW

Dallas Dr

MURPHY OIL USA INC
30985 HWY 441
PARCEL #: B55 023A
COMMERCIAL

WAL-MART STORES EAST INC
C/O WAL-MART PROPERTY TAX DEPT
30983 HWY 441
PARCEL #: B55 023
COMMERCIAL

STORE MASTER FUNDING III LLC
% NEA BBQ LLC
30975 HWY 441
PARCEL #: B55 024
COMMERCIAL

MATCH LINE SEE SHEET 2

PI 0016000

SR 15/US 441
FROM DALLAS DR TO FAULKNER ROAD
SHEET 1 OF 5

SCALE IN FEET
0 50 100 200

ATKINS

MATCH LINE SEE SHEET 1

MATCH LINE SEE SHEET 3

TACO BELL OF AMERICA
C/O TBC TAX #004531
30842 HWY 441
PARCEL #: B55 005
COMMERCIAL

137 ACRES LLC
30862 HWY 441
PARCEL #: B55 006A
COMMERCIAL

137 ACRES LLC
100 POTTERY RD
PARCEL #: B55 006
COMMERCIAL

CMY PROPERTY LLC
30908 HWY 441
PARCEL #: B55 007
COMMERCIAL

ASEEM INC A GEORGIA CORP
30934 HWY 441
PARCEL #: B55 008
COMMERCIAL

PERRY & BRADY
LAND HOLDINGS LLC
30828 HWY 441
PARCEL #: B55 004
COMMERCIAL

HP COMMERCE LLC
HEALEY WEATHERHOLTZ PROPERTIES LLC
199 POTTERY FACTORY DR
PARCEL #: B55 002
COMMERCIAL

Pottery Factory Dr

SR 15 / US 441

14' WIDE CONCRETE MEDIAN

2' WIDE CONCRETE MEDIAN, TYP.

12' WIDE LEFT TURN LANE, TYP.

EXIST ROW

100' TAPER, TYP.

235' STORAGE, TYP.

235' STORAGE, TYP.

100' TAPER, TYP.

REQ'D R/W

CONSTRUCT ISLAND

DRIVEWAY ESMT

EXIST ROW

KALI ENTERPRISES INC
C/O QUICK TRIP CORPORATION
30851 HWY 441
PARCEL #: B55 025
COMMERCIAL

Industrial Park Dr

EXIST ROW

EXIST ROW

2

BANKS CROSSING PARTNERS LLC
200 BANKS CROSSING DR
PARCEL #: B55 030
COMMERCIAL

SFG LL 2017 I LLC
C/O QUICK TRIP CORPORATION
30839 HWY 441
PARCEL #: B55 026
COMMERCIAL

EXIST ROW

ATLANTA FAMILY RESTAURANTS INC
30835 HWY 441
PARCEL #: B55 027
COMMERCIAL

SEAGATE PROPERTIES
30817 HWY 441
PARCEL #: B55 028
COMMERCIAL

2

BANKS CROSSING PARTNERS LLC
200 BANKS CROSSING DR
PARCEL #: B55 030
COMMERCIAL

GILBERT M MILLER
D/B/A
WAFFLE HOUSE #717
30789 HWY 441
PARCEL #: B55 029
COMMERCIAL

ENDEAVOR DAVIS
142 HAMPTON CT
PARCEL #: B54D018
RESIDENTIAL

PI 0016000

SR 15/US 441
FROM DALLAS DR TO FAULKNER ROAD
SHEET 2 OF 5

SCALE IN FEET
0 50 100 200

ATKINS

MATCH LINE SEE SHEET 2

MATCH LINE SEE SHEET 4

HPT TA PROPERTIES LLC
TA OPERATING LLC D.B.D
30732 HWY 441
PARCEL #: B54D017
COMMERCIAL

EXIST ROW/LA

I-85 NB Exit Ramp

INTERSTATE 85

END LA
TIE TO EXIST RW

DRIVEWAY ESMT

REQ'D R/W

DRIVEWAY TO BE CLOSED, TYP.

END PROJECT
P.I. No. 0016000

SR 15 / US 441

REQ'D R/W

DRIVEWAY ESMT

BEGIN LA
TIE TO EXIST RW

EXIST ROW

BEGIN LA
TIE TO EXIST RW

14' WIDE CONCRETE MEDIAN

EXIST ROW

EXIST ROW

EXIST ROW

END LA
TIE TO EXIST RW

REQ'D R/W

DRIVEWAY ESMT

REQ'D R/W

DRIVEWAY ESMT

REQ'D R/W

DRIVEWAY ESMT

CONSTRUCT ISLAND

4

FCPT HOSPITALITY PROPERTIES LLC
30789 HWY 441
PARCEL #: B54D019
COMMERCIAL

6

PRIMAX PROPERTIES LLC
30733 HWY 441
PARCEL #: B54D020
COMMERCIAL

EXIST ROW/LA

I-85 NB Entrance Ramp

INTERSTATE 85

GILBERT M MILLER
D/B/A
WAFFLE HOUSE #717
30789 HWY 441
PARCEL #: B55 029
COMMERCIAL

ENDEAVOR DAVIS
142 HAMPTON CT
PARCEL #: B54D018
RESIDENTIAL

Hampton Ct

5

SUNRISE COMMERCE HOTEL GROUP LLC
30747 HWY 441
PARCEL #: B54D021
COMMERCIAL

PI 0016000	SR 15/US 441 FROM DALLAS DR TO FAULKNER ROAD SHEET 3 OF 5	SCALE IN FEET 0 50 100 200	ATKINS

PI 0015670	SR 15/US 441 FROM DALLAS DR TO FAULKNER ROAD SHEET 4 OF 5	SCALE IN FEET 0 50 100 200	ATKINS

CAPSTONE ACQUISITIONS LLC
288 E RIDGEWAY RD
PARCEL #: B54D068
COMMERCIAL

GRID PROPERTIES
195 FAULKNER RD
PARCEL #: B54D064
COMMERCIAL

HUY NGOC NGUYEN
& CHRIS PHAGAN
FAULKNER RD
PARCEL #: B54D065
RESIDENTIAL

Faulkner Rd

Steven B Tanger Blvd

EXIST ROW

PREMIER HOTEL GROUP INC
30490 HWY 441
PARCEL #: B54D052A
COMMERCIAL

FORT HILL LAND HOLDINGS LLC
30466 HWY 441
PARCEL #: B54D051
COMMERCIAL

ATM FUNDING INC & ALVIN GIBSON
& LORI ARCHER
108 FAULKNER RD
PARCEL #: B54D048
COMMERCIAL

14' WIDE
CONCRETE MEDIAN
EXIST ROW

100' TAPER

300' STORAGE

12' WIDE
LEFT TURN LANE, TYP.

2' WIDE
CONCRETE MEDIAN, TYP.

400' STORAGE

100' TAPER

END PROJECT
P.I. No. 0015670

SR 15 / US 441

ARBY'S PROPERTIES LLC
% ARBY'S RESTAURANT GROUP INC
30487 HWY 441
PARCEL #: B54D044
COMMERCIAL

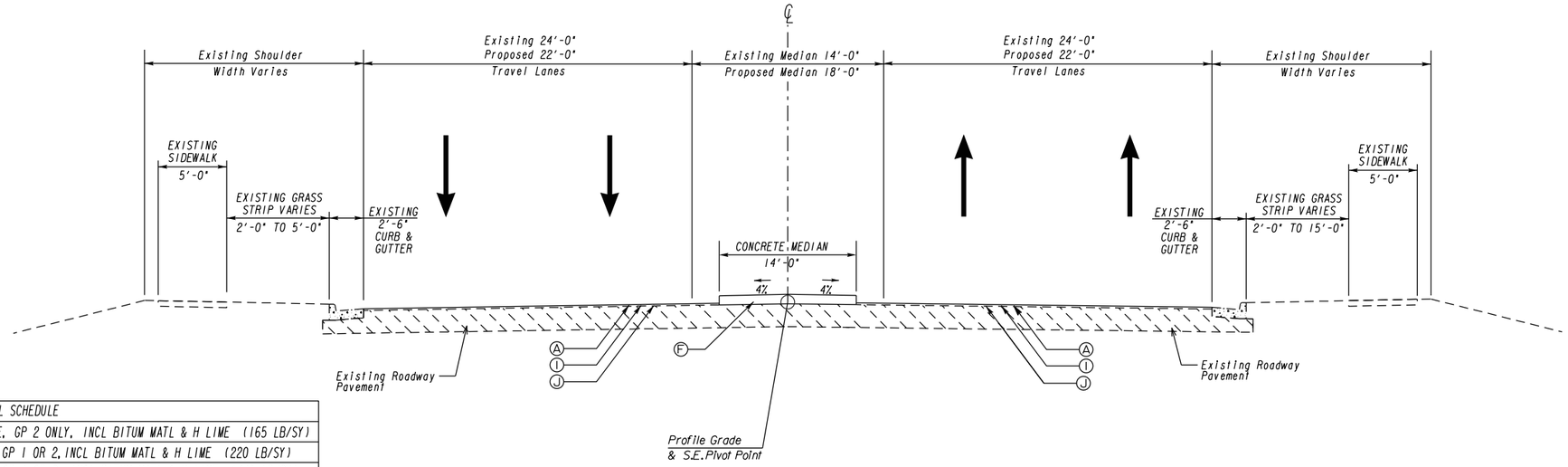
DEVELOPMENT AUTHORITY
OF BANKS COUNTY
GROVE CREEK PT
PARCEL #: B54 047D
COMMERCIAL

DEVELOPMENT AUTHORITY OF BANKS COUNTY
GROVE CREEK PT
PARCEL #: B54 047D
COMMERCIAL

MATCH LINE SEE SHEET 4

PI 0015670	SR 15/US 441 FROM DALLAS DR TO FAULKNER ROAD SHEET 5 OF 5	SCALE IN FEET 0 50 100 200	ATKINS

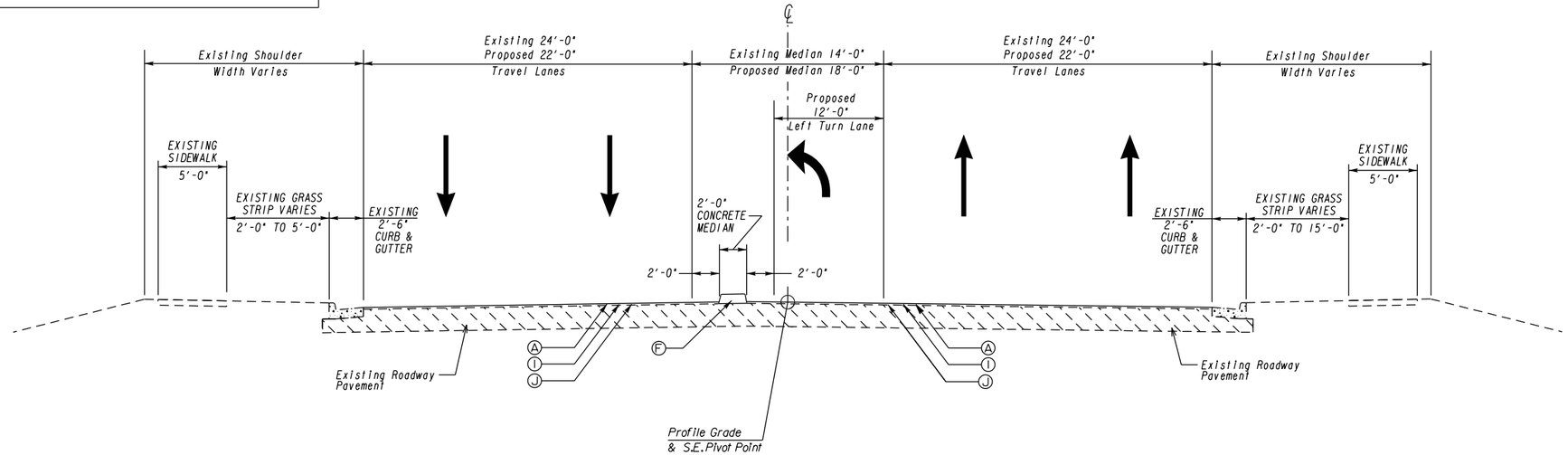
Typical Sections



PAVEMENT MATERIAL SCHEDULE
(A) RECYCLED ASPH CONC 12.5 MM SUPERPAVE, GP 2 ONLY, INCL BITUM MATL & H LIME (165 LB/SY)
(B) RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME (220 LB/SY)
(C) RECYCLED ASPH CONC 25 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME (440 LB/SY)
(D) GR AGGR BASE CRS, INCL MATL (8")
(E) PAVEMENT EDGE TREATMENT, P-7
(F) CONCRETE MEDIAN, 7 ½ IN (MONOLITHIC, INTEGRAL, TYPE 7 FACE)
(G) CONC SIDEWALK, 4 IN
(H) CONC CURB & GUTTER, 8 IN x 30 IN, TP 2
(I) MILL ASPH CONC PVMT, VARIABLE DEPTH
(J) RECYCLED ASPH CONC LEVELING, INCL BITUM MATL & H LIME
(K) SOD

TYPICAL SECTION NO. 1

SR 15/US 441
PROPOSED RAISED MEDIAN
(P.I. No. 0015670 & 0016000)



TYPICAL SECTION NO. 2

SR 15/US 441
LEFT TURN LANE WITH
PROPOSED RAISED Concrete MEDIAN
(P.I. No. 0015670 & 0016000)

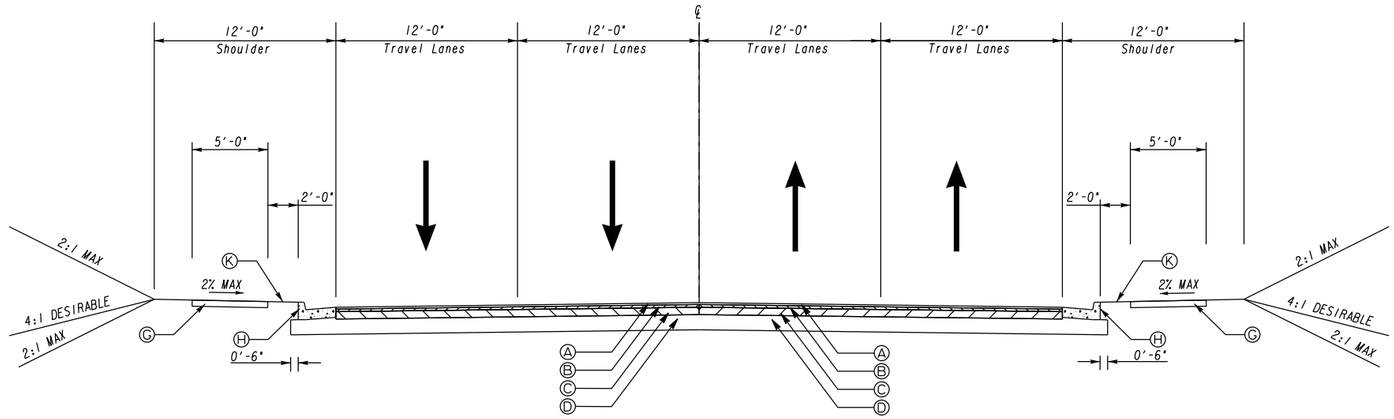
ATKINS

REVISION DATES

TYPICAL SECTIONS
SR 15/US 441
FROM DALLAS DR TO FAULKNER RD

CHECKED:		DATE:		DRAWING No.
BACKCHECKED:		DATE:		05-0001
CORRECTED:		DATE:		
VERIFIED:		DATE:		

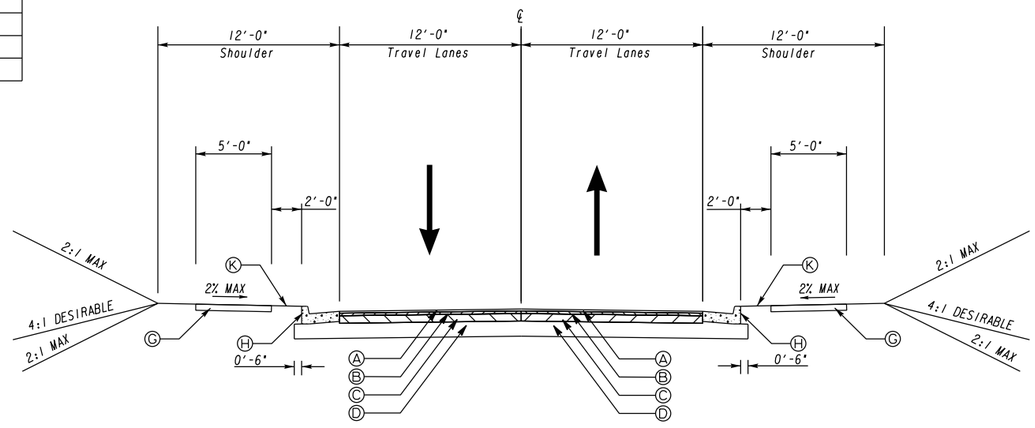
10/23/2015 GPLN



TYPICAL SECTION NO. 3

STEVEN B TANGER BLVD
(P.I. No. 0015670)

PAVEMENT MATERIAL SCHEDULE
(A) RECYCLED ASPH CONC 12.5 MM SUPERPAVE, GP 2 ONLY, INCL BITUM MATL & H LIME (165 LB/SY)
(B) RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME (220 LB/SY)
(C) RECYCLED ASPH CONC 25 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME (440 LB/SY)
(D) GR AGGR BASE CRS, INCL MATL (8")
(E) PAVEMENT EDGE TREATMENT, P-7
(F) CONCRETE MEDIAN, 7 1"2 IN (MONOLITHIC, INTEGRAL, TYPE 7 FACE)
(G) CONC SIDEWALK, 4 IN
(H) CONC CURB & GUTTER, 8 IN x 30 IN, TP 2
(I) MILL ASPH CONC PVMT, VARIABLE DEPTH
(J) RECYCLED ASPH CONC LEVELING, INCL BITUM MATL & H LIME
(K) SOD



TYPICAL SECTION NO. 4

FAULKNER RD
ACCESS RD
(P.I. No. 0015670)

ATKINS

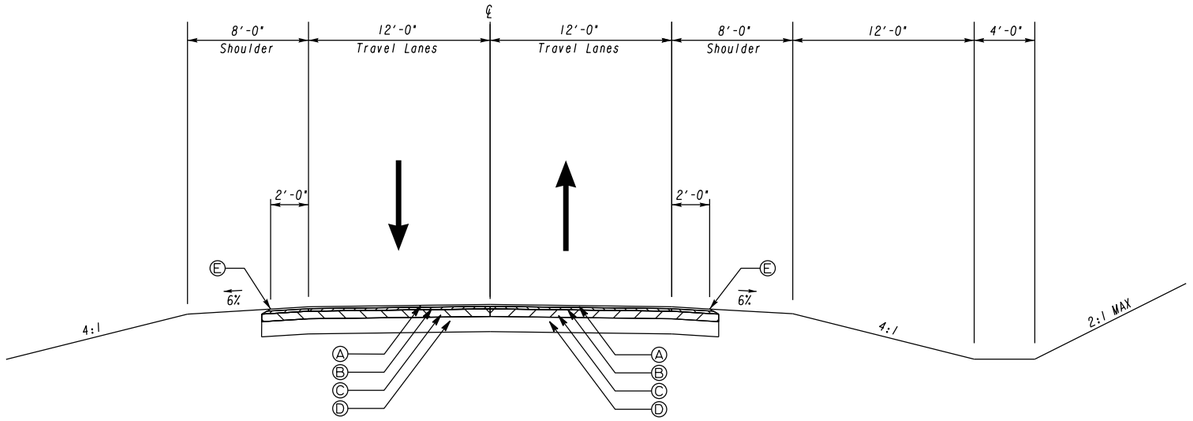
REVISION DATES		

TYPICAL SECTIONS
SR 15/US 441
FROM DALLAS DR TO FAULKNER RD

CHECKED:		DATE:		DRAWING No.
BACKCHECKED:		DATE:		05-0002
CORRECTED:		DATE:		
VERIFIED:		DATE:		

10/23/2015 GPLN

PAVEMENT MATERIAL SCHEDULE
(A) RECYCLED ASPH CONC 12.5 MM SUPERPAVE, GP 2 ONLY, INCL BITUM MATL & H LIME (165 LB/SY)
(B) RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME (220 LB/SY)
(C) RECYCLED ASPH CONC 25 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME (440 LB/SY)
(D) GR AGGR BASE CRS, INCL MATL (8")
(E) PAVEMENT EDGE TREATMENT, P-7
(F) CONCRETE MEDIAN, 7 1"2 IN (MONOLITHIC, INTEGRAL, TYPE 7 FACE)
(G) CONC SIDEWALK, 4 IN
(H) CONC CURB & GUTTER, 8 IN x 30 IN, TP 2
(I) MILL ASPH CONC PVMT, VARIABLE DEPTH
(J) RECYCLED ASPH CONC LEVELING, INCL BITUM MATL & H LIME
(K) SOD



TYPICAL SECTION NO. 5

FAULKNER RD
(P.I. No. 0015670)

10/23/2015 GPLN

ATKINS

REVISION DATES		

TYPICAL SECTIONS
SR 15/US 441
FROM DALLAS DR TO FAULKNER RD

CHECKED:		DATE:		DRAWING No.
BACKCHECKED:		DATE:		
CORRECTED:		DATE:		05-0003
VERIFIED:		DATE:		

Cost Estimate

PI 0015670

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE P.I. No. **0015670**

OFFICE Office of Program Delivery

PROJECT DESCRIPTION

SR 15 from Jackson County Line to CR 18/Faulkner Road

DATE September 28, 2018

From: Kimberly Nesbitt, State Program Delivery Administrator

To: Lisa L. Myers, State Project Review Engineer
via Email Mailbox: **CostEstimatesandUpdates@dot.ga.gov**

Subject: REVISIONS TO PROGRAMMED COSTS

PROJECT MANAGER Heidi Schneider

MGMT LET DATE

MGMT ROW DATE

PROGRAMMED COSTS (TPro W/OUT INFLATION)

CONSTRUCTION	$	2,000,000.00	DATE	N/A
RIGHT OF WAY	$		DATE	N/A
UTILITIES	$		DATE	N/A

LAST ESTIMATE UPDATE

REVISED COST ESTIMATES

CONSTRUCTION*	$	4,863,050.80
RIGHT OF WAY	$	TBD
UTILITIES	$	202,000.00

*Cost Contains **10** % Contingency

REASONS FOR COST INCREASE AND CONTINGENCY JUSTIFICATION:

Concept level cost estimate. Cost letter increase included. Additional scope to the project for resurfacing/restriping the entire project corridor; adding the realignments of Steven B. Tanger Blvd, Faulkner Road, and Access Road.

CONTINGENCY SUMMARY

A.	**CONSTRUCTION COST ESTIMATE:**	$ 4,066,541.02	Base Estimate From CES		
B.	**ENGINEERING AND INSPECTION (E & I):**	$ 203,327.05	Base Estimate (A) x	5	%
C.	**CONTINGENCY:**	$ 426,986.81	Base Estimate (A) + E & I (B) x	10	%
			See % Table in "Risk Based Cost Estimation" Memo		
D.	**TOTAL LIQUID AC ADJUSTMENT:**	$ 166,195.92	Total From Liquid AC Spreadsheet		
E.	**CONSTRUCTION TOTAL:**	$ **4,863,050.80**	(A + B + C + D = E)		

REIMBURSABLE UTILTY COSTS

UTILITY OWNER	REIMBURSABLE COST
City of Commerce Internet	$ 75,000.00
Gerogia Power-Distribution	$ 75,000.00
Jackson EMC	$ 52,000.00
TOTAL	**$ 202,000.00**

ATTACHMENTS: (File Copy in the Project Cost Estimate Folder)

Cost estimate from 411
Utility Cost Estimate letter
Cost increase letter

Consultant Validation of Final QC/QA for Construction Cost Estimate Used in This Revision To Programmed Costs

COMPANY NAME:	Atkins North America

VALIDATION OF FINAL QC/QA

PRINTED NAME:	Ashlyn Morgan
TITLE:	Project Manager
SIGNATURE:	
DATE:	9/28/2018

PROJ. NO.		CALL NO.	0/00/2016
P.I. NO.	0015670		
DATE	9/28/2018		

INDEX (TYPE)	DATE	INDEX
REG. UNLEADED	Sep-18	$ 2.693
DIESEL		$ 3.077
LIQUID AC		$ 553.00

Link to AC Index:
http://www.dot.ga.gov/PS/Materials/AsphaltFuelIndex

LIQUID AC ADJUSTMENTS

PA=[((APM-APL)/APL)]xTMTxAPL

Asphalt

Price Adjustment (PA)				**160923**	**$ 160,923.00**
Monthly Asphalt Cement Price month placed (APM)	Max. Cap	60%	$	884.80	
Monthly Asphalt Cement Price month project let (APL)			$	553.00	
Total Monthly Tonnage of asphalt cement (TMT)				485	

ASPHALT	Tons	%AC	AC ton
Leveling	1200	5.0%	60
12.5 OGFC		5.0%	0
12.5 mm	3100	5.0%	155
9.5 mm SP		5.0%	0
25 mm SP	3500	5.0%	175
19 mm SP	1900	5.0%	95
	9700		**485**

BITUMINOUS TACK COAT

Price Adjustment (PA)			**$**	**5,272.92**	**$ 5,272.92**
Monthly Asphalt Cement Price month placed (APM)	Max. Cap	60%	$	884.80	
Monthly Asphalt Cement Price month project let (APL)			$	553.00	
Total Monthly Tonnage of asphalt cement (TMT)				15.89187341	

Bitum Tack Gals	gals/ton	tons
3700	232.8234	15.8918734

BITUMINOUS TACK COAT (surface treatment)

Price Adjustment (PA)				**0**	**$ -**
Monthly Asphalt Cement Price month placed (APM)	Max. Cap	60%	$	884.80	
Monthly Asphalt Cement Price month project let (APL)			$	553.00	
Total Monthly Tonnage of asphalt cement (TMT)				0	

Bitum Tack	SY	Gals/SY	Gals	gals/ton	tons
Single Surf. Trmt.		0.20	0	232.8234	0
Double Surf.Trmt.		0.44	0	232.8234	0
Triple Surf. Trmt		0.71	0	232.8234	0
					0

TOTAL LIQUID AC ADJUSTMENT **$ 166,195.92**

Detailed Cost Estimate

Job ID: 0015670

Detailed Cost Estimate

Time Processed: Oct-04-2018 12:57:20 PM

JOB NUMBER: 0015670
FED/STATE PROJECT NUMBER:
SPEC YEAR: 13
ITEM HISTORY: ALL_2018Q1_24MO
DESCRIPTION: SR 15 FROM I-85 TO CR 18/ FAULKNER RD
ASSIGNED CONTROL GROUP: ATKINS - CONSULTANTS

ITEMS FOR JOB 0015670

-

Line Number	Item	Quantity	Units	Price	Description	Amount
0005	150-1000	1.00	LS	$300,000.00000	TRAFFIC CONTROL - PI 0015670	$300,000.00
0010	153-1300	1.00	EA	$97,178.44146	FIELD ENGINEERS OFFICE TP 3	$97,178.44
0015	210-0100	1.00	LS	$550,000.00000	GRADING COMPLETE - PI 0015670	$550,000.00
0020	310-1101	7800.00	TN	$29.71352	GR AGGR BASE CRS, INCL MATL	$231,765.46
0022	318-3000	50.00	TN	$33.63473	AGGR SURF CRS	$1,681.74
0025	402-1812	1200.00	TN	$79.05792	RECYL AC LEVELING,INC BM&HL	$94,869.50
0029	402-3121	3500.00	TN	$80.21789	RECYL AC 25MM SP,GP1/2,BM&HL	$280,762.62
0030	402-3130	3100.00	TN	$80.85455	RECYL AC 12.5MM SP,GP2,BM&HL	$250,649.11
0035	402-3190	1900.00	TN	$83.63437	RECYL AC 19 MM SP,GP 1 OR 2 ,INC BM&HL	$158,905.30
0040	413-0750	3700.00	GL	$2.71000	TACK COAT	$10,027.00
0042	432-5010	19300.00	SY	$3.04035	MILL ASPH CONC PVMT,VARB DEPTH	$58,678.76
0044	441-0018	1000.00	SY	$56.46296	DRIVEWAY CONCRETE, 8 IN TK	$56,462.96
0045	441-0104	3000.00	SY	$45.00000	CONC SIDEWALK, 4 IN	$135,000.00
0049	441-0754	3400.00	SY	$58.20542	CONC MEDIAN, 7 1/2 IN	$197,898.43
0050	441-5002	250.00	LF	$23.96730	CONC HEADER CURB, 6, TP 2	$5,991.83
0054	441-6222	6000.00	LF	$40.98521	CONC CURB & GUTTER/ 8X30TP2	$245,911.26
0065	550-1180	2600.00	LF	$44.10258	STM DR PIPE 18,H 1-10	$114,666.71
0070	550-1240	500.00	LF	$60.81594	STM DR PIPE 24,H 1-10	$30,407.97
0075	550-1360	180.00	LF	$75.80594	STM DR PIPE 36,H 1-10	$13,645.07
0080	550-4218	3.00	EA	$612.00664	FLARED END SECT 18 IN, ST DR	$1,836.02
0085	550-4224	1.00	EA	$787.63933	FLARED END SECT 24 IN, ST DR	$787.64
0090	550-4236	1.00	EA	$1,262.18014	FLARED END SECT 36 IN, ST DR	$1,262.18
0095	632-0003	4.00	EA	$10,324.11426	CHANGEABLE MESS SIGN,PORT,TP 3	$41,296.46
0100	668-1100	32.00	EA	$2,595.11282	CATCH BASIN, GP 1	$83,043.61
0105	668-1110	27.00	LF	$227.23596	CATCH BASIN, GP 1, ADDL DEPTH	$6,135.37
0110	668-2100	6.00	EA	$2,478.13793	DROP INLET, GP 1	$14,868.83
0115	668-2110	6.00	LF	$241.80881	DROP INLET, GP 1, ADDL DEPTH	$1,450.85
0120	668-5000	4.00	EA	$2,097.08934	JUNCTION BOX	$8,388.36
0125	500-3110	90.00	LF	$600.00000	CLASS A CONCRETE, TYPE P1, RETAINING WAL	$54,000.00
0130	500-3115	100.00	LF	$660.70835	CLASS A CONCRETE, TYPE P2, RETAINING WAL	$66,070.84
0135	627-1000	1200.00	SF	$56.29769	MSE WALL FACE, 0 - 10 FT HT, WALL NO - PI 0015670	$67,557.23
0140	627-1010	2000.00	SF	$58.82831	MSE WALL FACE, 10 - 20 FT HT, WALL NO - PI 0015670	$117,656.62
0145	627-1020	3000.00	SF	$60.63957	MSE WALL FACE, 20 - 30 FT HT, WALL NO - PI 0015670	$181,918.71
0150	627-1100	310.00	LF	$93.72714	COPING A, WALL NO - PI 0015670	$29,055.41
0154	603-2182	100.00	SY	$55.97455	STN DUMPED RIP RAP, TP 3, 24	$5,597.46
0155	603-7000	100.00	SY	$4.75817	PLASTIC FILTER FABRIC	$475.82
0159	700-6910	11.00	AC	$962.94438	PERMANENT GRASSING	$10,592.39
0160	700-7000	50.00	TN	$9.76838	AGRICULTURAL LIME	$488.42
0165	700-8000	10.00	TN	$664.33877	FERTILIZER MIXED GRADE	$6,643.39
0170	700-8100	550.00	LB	$2.74844	FERTILIZER NITROGEN CONTENT	$1,511.64
0174	700-9300	1200.00	SY	$8.30527	SOD	$9,966.32
0175	716-2000	33000.00	SY	$0.89041	EROSION CONTROL MATS, SLOPES	$29,383.53
0180	163-0232	6.00	AC	$143.79385	TEMPORARY GRASSING	$862.76
0185	163-0240	40.00	TN	$261.26069	MULCH	$10,450.43
0190	163-0300	6.00	EA	$1,739.91657	CONSTRUCTION EXIT	$10,439.50
0195	163-0503	2.00	EA	$557.45273	CONSTR AND REMOVE SILT CONTROL GATE,TP 3	$1,114.91
0200	163-0527	11.00	EA	$381.44498	CNST/REM RIP RAP CKDM,STN P RIPRAP/SN BG	$4,195.89
0203	163-0541	2.00	EA	$694.78604	CONSTR & REM ROCK FILTER DAMS	$1,389.57
0204	163-0543	100.00	LF	$63.87957	CONSTR & REM STONE FILTER BERM	$6,387.96
0205	163-0550	38.00	EA	$175.19137	CONS & REM INLET SEDIMENT TRAP	$6,657.27

Line Number	Item	Quantity	Units	Price	Description	Amount
0210	165-0030	1800.00	LF	$0.89828	MAINT OF TEMP SILT FENCE, TP C	$1,616.90
0215	165-0041	110.00	LF	$8.46320	MAINT OF CHECK DAMS - ALL TYPES	$930.95
0220	165-0087	2.00	EA	$82.80580	MAINT OF SILT CONTROL GATE, TP 3	$165.61
0225	165-0101	6.00	EA	$664.01859	MAINT OF CONST EXIT	$3,984.11
0230	165-0105	38.00	EA	$56.37524	MAINT OF INLET SEDIMENT TRAP	$2,142.26
0233	165-0110	2.00	EA	$243.89768	MAINT OF ROCK FILTER DAM	$487.80
0234	165-0112	50.00	LF	$22.76139	MAINT OF STONE FILTER BERM	$1,138.07
0235	167-1000	2.00	EA	$219.63706	WATER QUALITY MONITORING AND SAMPLING	$439.27
0240	167-1500	12.00	MO	$710.39681	WATER QUALITY INSPECTIONS	$8,524.76
0245	171-0030	3600.00	LF	$4.00443	TEMPORARY SILT FENCE, TYPE C	$14,415.95
0250	639-3004	4.00	EA	$13,404.12857	STEEL STRAIN POLE, TP IV	$53,616.51
0255	639-4004	4.00	EA	$9,688.50235	STRAIN POLE, TP IV	$38,754.01
0260	647-1000	1.00	LS	$100,000.00000	TRAF SIGNAL INSTALLATION NO - PI 0015670	$100,000.00
0265	647-1000	1.00	LS	$100,000.00000	TRAF SIGNAL INSTALLATION NO - PI 0015670	$100,000.00
0285	682-6233	1600.00	LF	$8.00000	CONDUIT, NONMETL, TP 3, 2 IN	$12,800.00
0290	682-9950	1000.00	LF	$20.00000	DIRECTIONAL BORE - 3"	$20,000.00
0295	682-9950	120.00	LF	$20.00000	DIRECTIONAL BORE - 5"	$2,400.00
0300	682-9950	400.00	LF	$20.00000	DIRECTIONAL BORE - 7"	$8,000.00
0305	937-6000	2.00	EA	$7,409.34287	MICROWAVE RADAR DETECTION ASSEMBLY	$14,818.69
0310	636-1033	240.00	SF	$16.58720	HWY SIGNS, TP1MAT,REFL SH TP 9	$3,980.93
0315	636-1036	400.00	SF	$20.00000	HWY SGN,TP1MAT,REFL SH TP 11	$8,000.00
0320	636-2070	960.00	LF	$8.20612	GALV STEEL POSTS, TP 7	$7,877.88
0325	636-2080	240.00	LF	$11.10974	GALV STEEL POSTS, TP 8	$2,666.34
0330	636-3010	8.00	EA	$518.03658	GROUND-MOUNTED BREAKAWAY SIGN SUPPORT	$4,144.29
0335	653-0120	28.00	EA	$84.55087	THERM PVMT MARK, ARROW, TP 2	$2,367.42
0340	653-0130	1.00	EA	$141.93554	THERM PVMT MARK, ARROW, TP 3	$141.94
0350	653-1501	11900.00	LF	$0.61583	THERMO SOLID TRAF ST 5 IN, WHI	$7,328.38
0355	653-1502	10400.00	LF	$0.57666	THERMO SOLID TRAF ST, 5 IN YEL	$5,997.26
0360	653-1704	600.00	LF	$7.17729	THERM SOLID TRAF STRIPE,24,WH	$4,306.37
0365	653-1804	5800.00	LF	$2.31217	THERM SOLID TRAF STRIPE, 8,WH	$13,410.59
0370	653-3501	9700.00	GLF	$0.32162	THERMO SKIP TRAF ST, 5 IN, WHI	$3,119.71
0375	653-6004	225.00	SY	$5.05247	THERM TRAF STRIPING, WHITE	$1,136.81
0380	654-1001	150.00	EA	$4.00505	RAISED PVMT MARKERS TP 1	$600.76
0385	654-1003	310.00	EA	$3.99969	RAISED PVMT MARKERS TP 3	$1,239.90
Total						**$4,066,541.02**

TOTALS FOR JOB 0015670

ITEMS COST:	$4,066,541.02
COST GROUP COST:	$0.00
ESTIMATED COST:	$4,066,541.02
CONTINGENCY PERCENT:	0.00%
ENGINEERING AND INSPECTION:	0.00%
ESTIMATED COST WITH CONTINGENCY AND E&I:	$4,066,541.02

File Location: Div of Preconstruction > CES

Original Version: May 24, 2013
Revision: Feb. April 5, 2018

Concept Utility Report

Project Number: N/A

District: One

County: Banks

Prepared by: Butch Jones

P.I. # 0015670

Date: 10/05/2018

Project Description: SR 15/US 441 fm Dallas Dr. to Faulkner Rd-Raised Median Including Faulkner Rd. Relocation.

The information provided herein has been gathered from Georgia811and/or field visits and serves as an estimate. Nothing contained in this report is to be used as a substitute for 1st Submission or SUE.

Are SUE services recommended? Yes

Level: ☐A ☒B ☐C ☐D

Public Interest Determination (PID):

☐Automatic ☐Mandatory ☐Consideration ☒No Use ☐Exempt

Is a separate utility funding phase recommended? Yes

Potential Project (Schedule/Budget) Impacts: Reimbursable buried power distribution crossing SR 15 and along Faulkner Road. Possible Utility Aid Requests from Banks County and City of Commerce.

Capital Improvement Projects (Utilities) Anticipated in the Area: N/A

Project Specific Recommendations for Avoidance/Mitigation: N/A

Right of Way Coordination: N/A

Environmental Coordination: N/A

Additional Remarks: None

Original Version: May 24, 2013
Revision: Feb. March 8, 2018

Utilities have facilities within the project limits.

Utilities have been identified using Georgia811 and/or field visits.

Facility Owner	**Facility Owner Contact Email Address**	**Existing Facilities/ Appurtenances**	**General Description of Location**	**Facilities to Avoid** *approx. limits*	**Facilities Retention Recommended** *approx. limits*	**Comments**
Banks County Water	sreece@co.banks.us	Water Main	Entire Project	N/A	N/A	N/A
City of Commerce	petec@commercega.org	Fiber-Internet	Entire Project	N/A	N/A	N/A
City of Commerce	rickl@commercega.org	Water/Sewer	Entire Project	N/A	N/A	N/A
City of Commerce	chrisb@commercega.org	Gas Main	Entire Project	N/A	N/A	N/A
Georgia Power	gdavis@southerncom	Buried Power Distribution	Entire Project	N/A	N/A	Recommend to avoid-some high reimbursables
Jackson EMC	mike.brown@jemc.com	Aerial Power Distribution	Entire Project	N/A	N/A	Some Reimbursables
Windstream	Jeff.hedden@windstream.com	Aerial-Buried Telephone	Entire Project	N/A	N/A	N/A
Comcast	Christopher.bates2@comcast.com	Aerial-Buried CATV	Entire Project	N/A	N/A	N/A

Note: *To add additional rows, click the bottom right corner of the box above, then click the blue* + *that will appear. Please add additional rows prior to entering text.*

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE

Project No: **n/a** Offic **GAINESVILLE**
County **Banks** Date: **August 21, 2018**
P.I.# **0015670**

Description: ***SR 15/US 441 fm Dallas Dr to Faulkner Rd-Raised Median Including Faulkner Road Relocation***

FROM Robby Oliver, District Utilities Manager

TO Heidi Schneider, Project Manager

SUBJECT **PRELIMINARY UTILITY COST ESTIMATE**

A review of utilities located on the above referenced project has been conducted with Concept Layout plans. Listed below is a breakdown of the anticipated reimbursable and non-reimbursable cost.

Utility Owner		Reimbursable	Non-Reimbursable	Estimate Based on
Banks County Water	**	$0.00	$42,000.00	Site Visit / Available Drawings
City of Commerce Water/Sewer	**	$0.00	$0.00	Site Visit / Available Drawings
City of Commerce Gas	**	$0.00	$110,950.00	Site Visit / Available Drawings
City of Commerce Internet		$75,000.00	$6,750.00	Site Visit / Available Drawings
Georgia Power-Distribution		$75,000.00	$85,000.00	Site Visit / Available Drawings
Georgia Power-Transmission		$0.00	$0.00	Site Visit / Available Drawings
Jackson EMC		$52,000.00	$104,000.00	Site Visit / Available Drawings
Windstream Telephone		$0.00	$13,500.00	Site Visit / Available Drawings
Comcast		$0.00	$0.00	Site Visit / Available Drawings
Total	100.00%	$202,000.00	$362,200.00	
Department Responsibility	100.00%	$202,000.00		
Local Sponsor Responsibility	0.00%	$0.00		PFA Dated N/A with N/A

** Indicates Potential Utility Aid Request from Local Gov't

Estimate is based on the best available information at the current stage.

If additional information is needed, please contact Robby Oliver at 770-533-8320.

cc: Patrick Allen, State Utilities Administrator
Yulonda Pride-Foster, State Utilities Preconstruction Manager
Ashlyn Morgan, Designer
Brandon Kirby, District Preconstruction Engineer
Robert Simpson, Area Manager
File

ATKINS
Member of the SNC-Lavalin Group

1600 RiverEdge Parkway,
NW, Suite 600
Atlanta, GA 30328-4612
770.933.0280
Atkinsglobal.com
SNCLavalin.com

September 28, 2018

Heidi Schneider
GDOT Project Manager
GDOT OFFICE OF PROGRAM DELIVERY
600 West Peachtree Street
Suite 1550
Atlanta, GA 30308

SUBJECT: Description of Cost Increase for PI No. 0015670; SR 15/US 441 from I-85 southbound ramps to Faulkner Road, located in Banks County, Georgia

Dear Ms. Schneider:

The intent of this letter is to provide justification to the increased construction cost shown in the current concept report compared to what's shown in GDOT's programmed cost database. The current construction programed estimate is $2,000,000. As part of our conceptual layout, estimated quantities with associated costs were put into GDOT's Cost Estimating System (CES) using the most recent construction bid item costs. As a result, the estimated construction cost comes to $4,863,050.80. This cost is consistent with other projects in the state.

Sincerely,

ATKINS North America, Inc.

Scott Shelton,P.E.
Project Manager

Cost Estimate

PI 0016000

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE P.I. No. **0016000**

OFFICE Office of Program Delivery

PROJECT DESCRIPTION

SR 15/US 441 from Jackson County line to I-85

DATE September 28, 2018

From: Kimberly Nesbitt, State Program Delivery Administrator

To: Lisa L. Myers, State Project Review Engineer
via Email Mailbox: **CostEstimatesandUpdates@dot.ga.gov**

Subject: REVISIONS TO PROGRAMMED COSTS

PROJECT MANAGER Heidi Schneider

MGMT LET DATE

MGMT ROW DATE

PROGRAMMED COSTS (TPro W/OUT INFLATION)

CONSTRUCTION	$	550,000.00	DATE	N/A
RIGHT OF WAY	$		DATE	N/A
UTILITIES	$		DATE	N/A

LAST ESTIMATE UPDATE

REVISED COST ESTIMATES

CONSTRUCTION*	$	2,179,370.49
RIGHT OF WAY	$	TBD
UTILITIES	$	0.00

*Cost Contains **10** % Contingency

REASONS FOR COST INCREASE AND CONTINGENCY JUSTIFICATION:

Concept level cost estimate. Cost increase letter attached. Additional scope to the project for resurfacing/restriping the entire project corridor.

CONTINGENCY SUMMARY

A.	**CONSTRUCTION COST ESTIMATE:**	$ 1,820,862.97	Base Estimate From CES		
B.	**ENGINEERING AND INSPECTION (E & I):**	$ 91,043.15	Base Estimate (A) x	5	%
C.	**CONTINGENCY:**	$ 191,190.61	Base Estimate (A) + E & I (B) x	10	%
			See % Table in "Risk Based Cost Estimation" Memo		
D.	**TOTAL LIQUID AC ADJUSTMENT:**	$ 76,273.76	Total From Liquid AC Spreadsheet		
E.	**CONSTRUCTION TOTAL:**	$ **2,179,370.49**	(A + B + C + D = E)		

REIMBURSABLE UTILTY COSTS

UTILITY OWNER	REIMBURSABLE COST
TOTAL	$ -

ATTACHMENTS: (File Copy in the Project Cost Estimate Folder)

Cost estimate
Utility Cost Estimate letter
Cost increase letter

Consultant Validation of Final QC/QA for Construction Cost Estimate Used in This Revision To Programmed Costs

COMPANY NAME:	Atkins North America

VALIDATION OF FINAL QC/QA

PRINTED NAME:	Ashlyn Morgan
TITLE:	Project Manager
SIGNATURE:	
DATE:	9/28/2018

PROJ. NO.		CALL NO.	0/00/2016
P.I. NO.	0016000		
DATE	9/28/2018		

INDEX (TYPE)	DATE	INDEX
REG. UNLEADED	Sep-18	$ 2.693
DIESEL		$ 3.077
LIQUID AC		$ 553.00

Link to AC Index:
http://www.dot.ga.gov/PS/Materials/AsphaltFuelIndex

LIQUID AC ADJUSTMENTS

PA=[((APM-APL)/APL)]xTMTxAPL

Asphalt

Price Adjustment (PA)				**72996**	**$ 72,996.00**
Monthly Asphalt Cement Price month placed (APM)	Max. Cap	60%	$	884.80	
Monthly Asphalt Cement Price month project let (APL)			$	553.00	
Total Monthly Tonnage of asphalt cement (TMT)				220	

ASPHALT	Tons	%AC	AC ton
Leveling	1700	5.0%	85
12.5 OGFC		5.0%	0
12.5 mm	2700	5.0%	135
9.5 mm SP		5.0%	0
25 mm SP		5.0%	0
19 mm SP		5.0%	0
	4400		**220**

BITUMINOUS TACK COAT

Price Adjustment (PA)			**$**	**3,277.76**	**$ 3,277.76**
Monthly Asphalt Cement Price month placed (APM)	Max. Cap	60%	$	884.80	
Monthly Asphalt Cement Price month project let (APL)			$	553.00	
Total Monthly Tonnage of asphalt cement (TMT)				9.878732121	

Bitum Tack Gals	gals/ton	tons
2300	232.8234	9.87873212

BITUMINOUS TACK COAT (surface treatment)

Price Adjustment (PA)				**0**	**$ -**
Monthly Asphalt Cement Price month placed (APM)	Max. Cap	60%	$	884.80	
Monthly Asphalt Cement Price month project let (APL)			$	553.00	
Total Monthly Tonnage of asphalt cement (TMT)				0	

Bitum Tack	SY	Gals/SY	Gals	gals/ton	tons
Single Surf. Trmt.		0.20	0	232.8234	0
Double Surf.Trmt.		0.44	0	232.8234	0
Triple Surf. Trmt		0.71	0	232.8234	0
					0

TOTAL LIQUID AC ADJUSTMENT **$ 76,273.76**

Detailed Cost Estimate

Job ID: 0016000

Detailed Cost Estimate

Time Processed: Oct-04-2018 12:58:11 PM

JOB NUMBER: 0016000
FED/STATE PROJECT NUMBER:
SPEC YEAR: 13
ITEM HISTORY: ALL_2018Q1_24MO
DESCRIPTION: SR 15 FROM JACKSON COUNTY LINE TO I-85
ASSIGNED CONTROL GROUP: ATKINS - CONSULTANTS

ITEMS FOR JOB 0016000

-

Line Number	Item	Quantity	Units	Price	Description	Amount
0005	150-1000	1.00	LS	$100,000.00000	TRAFFIC CONTROL - PI 0016000	$100,000.00
0010	153-1300	1.00	EA	$97,178.44146	FIELD ENGINEERS OFFICE TP 3	$97,178.44
0015	210-0100	1.00	LS	$200,000.00000	GRADING COMPLETE - PI 0016000	$200,000.00
0020	310-1101	100.00	TN	$45.60204	GR AGGR BASE CRS, INCL MATL	$4,560.20
0022	318-3000	50.00	TN	$33.63473	AGGR SURF CRS	$1,681.74
0025	402-1812	1700.00	TN	$76.59570	RECYL AC LEVELING,INC BM&HL	$130,212.69
0030	402-3130	2700.00	TN	$81.86067	RECYL AC 12.5MM SP,GP2,BM&HL	$221,023.81
0035	413-0750	2300.00	GL	$2.49830	TACK COAT	$5,746.09
0044	432-5010	28500.00	SY	$2.72073	MILL ASPH CONC PVMT,VARB DEPTH	$77,540.81
0045	441-0104	200.00	SY	$45.00000	CONC SIDEWALK, 4 IN	$9,000.00
0049	441-0754	4300.00	SY	$57.69381	CONC MEDIAN, 7 1/2 IN	$248,083.38
0050	441-5002	50.00	LF	$28.05329	CONC HEADER CURB, 6, TP 2	$1,402.66
0051	441-6222	450.00	LF	$52.52435	CONC CURB & GUTTER/ 8X30TP2	$23,635.96
0060	500-9999	25.00	CY	$269.06339	CL B CONC,BASE OR PVMT WIDEN	$6,726.58
0065	550-1180	600.00	LF	$52.99821	STM DR PIPE 18,H 1-10	$31,798.93
0095	632-0003	4.00	EA	$10,324.11426	CHANGEABLE MESS SIGN,PORT,TP 3	$41,296.46
0100	668-1100	3.00	EA	$2,567.63369	CATCH BASIN, GP 1	$7,702.90
0105	668-1110	3.00	LF	$289.57187	CATCH BASIN, GP 1, ADDL DEPTH	$868.72
0110	668-2100	4.00	EA	$2,478.13793	DROP INLET, GP 1	$9,912.55
0115	668-2110	4.00	LF	$245.05949	DROP INLET, GP 1, ADDL DEPTH	$980.24
0159	700-6910	1.00	AC	$1,030.42485	PERMANENT GRASSING	$1,030.42
0160	700-7000	5.00	TN	$15.55357	AGRICULTURAL LIME	$77.77
0165	700-8000	1.00	TN	$604.76740	FERTILIZER MIXED GRADE	$604.77
0170	700-8100	50.00	LB	$3.79490	FERTILIZER NITROGEN CONTENT	$189.75
0180	163-0232	1.00	AC	$347.73285	TEMPORARY GRASSING	$347.73
0185	163-0240	2.00	TN	$176.77537	MULCH	$353.55
0190	163-0300	4.00	EA	$1,758.10637	CONSTRUCTION EXIT	$7,032.43
0195	163-0541	2.00	EA	$694.78604	CONSTR & REM ROCK FILTER DAMS	$1,389.57
0200	163-0543	100.00	LF	$63.87957	CONSTR & REM STONE FILTER BERM	$6,387.96
0205	163-0550	30.00	EA	$176.34750	CONS & REM INLET SEDIMENT TRAP	$5,290.43
0210	165-0030	200.00	LF	$1.16157	MAINT OF TEMP SILT FENCE, TP C	$232.31
0225	165-0101	4.00	EA	$664.01859	MAINT OF CONST EXIT	$2,656.07
0230	165-0105	30.00	EA	$56.50807	MAINT OF INLET SEDIMENT TRAP	$1,695.24
0233	165-0110	2.00	EA	$243.89768	MAINT OF ROCK FILTER DAM	$487.80
0234	165-0112	50.00	LF	$22.76139	MAINT OF STONE FILTER BERM	$1,138.07
0235	167-1000	2.00	EA	$219.63706	WATER QUALITY MONITORING AND SAMPLING	$439.27
0240	167-1500	12.00	MO	$710.39681	WATER QUALITY INSPECTIONS	$8,524.76
0245	171-0030	400.00	LF	$4.49890	TEMPORARY SILT FENCE, TYPE C	$1,799.56
0250	639-3004	4.00	EA	$13,404.12857	STEEL STRAIN POLE, TP IV	$53,616.51
0255	639-4004	8.00	EA	$9,688.50235	STRAIN POLE, TP IV	$77,508.02
0260	647-1000	1.00	LS	$100,000.00000	TRAF SIGNAL INSTALLATION NO - PI 0016000	$100,000.00
0265	647-1000	1.00	LS	$100,000.00000	TRAF SIGNAL INSTALLATION NO - PI 0016000	$100,000.00
0270	647-1000	1.00	LS	$100,000.00000	TRAF SIGNAL INSTALLATION NO - PI 0016000	$100,000.00
0285	682-6233	2400.00	LF	$8.00000	CONDUIT, NONMETL, TP 3, 2 IN	$19,200.00
0290	682-9950	1500.00	LF	$20.00000	DIRECTIONAL BORE - 3"	$30,000.00
0295	682-9950	180.00	LF	$20.00000	DIRECTIONAL BORE - 5"	$3,600.00
0300	682-9950	600.00	LF	$20.00000	DIRECTIONAL BORE - 7"	$12,000.00
0305	937-6000	3.00	EA	$7,409.34287	MICROWAVE RADAR DETECTION ASSEMBLY	$22,228.03
0310	636-1033	60.00	SF	$17.94859	HWY SIGNS, TP1MAT,REFL SH TP 9	$1,076.92
0315	636-1036	100.00	SF	$20.00000	HWY SGN,TP1MAT,REFL SH TP 11	$2,000.00

Line Number	Item	Quantity	Units	Price	Description	Amount
0320	636-2070	240.00	LF	$8.74398	GALV STEEL POSTS, TP 7	$2,098.56
0325	636-2080	60.00	LF	$11.55844	GALV STEEL POSTS, TP 8	$693.51
0330	636-3010	2.00	EA	$552.91277	GROUND-MOUNTED BREAKAWAY SIGN SUPPORT	$1,105.83
0335	653-0120	40.00	EA	$83.11915	THERM PVMT MARK, ARROW, TP 2	$3,324.77
0340	653-0130	2.00	EA	$141.93554	THERM PVMT MARK, ARROW, TP 3	$283.87
0350	653-1501	10800.00	LF	$0.62494	THERMO SOLID TRAF ST 5 IN, WHI	$6,749.35
0355	653-1502	6900.00	LF	$0.60702	THERMO SOLID TRAF ST, 5 IN YEL	$4,188.44
0360	653-1704	500.00	LF	$7.22916	THERM SOLID TRAF STRIPE,24,WH	$3,614.58
0365	653-1804	5300.00	LF	$2.31471	THERM SOLID TRAF STRIPE, 8,WH	$12,267.96
0370	653-3501	8300.00	GLF	$0.32616	THERMO SKIP TRAF ST, 5 IN, WHI	$2,707.13
0375	653-6004	425.00	SY	$4.90798	THERM TRAF STRIPING, WHITE	$2,085.89
0380	654-1001	10.00	EA	$4.55701	RAISED PVMT MARKERS TP 1	$45.57
0385	654-1003	360.00	EA	$3.99557	RAISED PVMT MARKERS TP 3	$1,438.41
Total						**$1,820,862.97**

TOTALS FOR JOB 0016000

ITEMS COST:	$1,820,862.97
COST GROUP COST:	$0.00
ESTIMATED COST:	$1,820,862.97
CONTINGENCY PERCENT:	0.00%
ENGINEERING AND INSPECTION:	0.00%
ESTIMATED COST WITH CONTINGENCY AND E&I:	$1,820,862.97

File Location: Div of Preconstruction > CES

Original Version: May 24, 2013
Revision: Feb. April 5, 2018

Concept Utility Report

Project Number: N/A

District: One

County: Banks

Prepared by: Butch Jones

P.I. # 0016000

Date: 10/05/2018

Project Description: SR 15/US 441 fm Jackson County Line to I-85 - Median Work

The information provided herein has been gathered from Georgia811and/or field visits and serves as an estimate. Nothing contained in this report is to be used as a substitute for 1st Submission or SUE.

Are SUE services recommended? No

Level: ☐A ☐B ☐C ☐D

Public Interest Determination (PID):

☐Automatic ☐Mandatory ☐Consideration ☒No Use ☐Exempt

Is a separate utility funding phase recommended? Yes

Potential Project (Schedule/Budget) Impacts: None

Capital Improvement Projects (Utilities) Anticipated in the Area: N/A

Project Specific Recommendations for Avoidance/Mitigation: N/A

Right of Way Coordination: N/A

Environmental Coordination: N/A

Additional Remarks: None

Original Version: May 24, 2013
Revision: Feb. March 8, 2018

Utilities have facilities within the project limits.

Utilities have been identified using Georgia811 and/or field visits.

Facility Owner	**Facility Owner Contact Email Address**	**Existing Facilities/ Appurtenances**	**General Description of Location**	**Facilities to Avoid** *approx. limits*	**Facilities Retention Recommended** *approx. limits*	**Comments**
Banks County Water	sreece@co.banks.us	Water Main	Entire Project	N/A	N/A	N/A
City of Commerce	petec@commercega.org	Fiber-Internet	Entire Project	N/A	N/A	N/A
City of Commerce	rickl@commercega.org	Water/Sewer	Entire Project	N/A	N/A	N/A
City of Commerce	chrisb@commercega.org	Gas Main	Entire Project	N/A	N/A	N/A
Georgia Power	gdavis@southerncom	Buried Power Distribution	Entire Project	N/A	N/A	Recommend to avoid-some high reimbursables
Georgia Power	deeverit@southernco.com	Aerial Transmission	Crossing Project Limits	N/A	N/A	No apparent Conflict
Jackson EMC	mike.brown@jemc.com	Aerial Power Distribution	Entire Project	N/A	N/A	Some Reimbursables
Windstream	Jeff.hedden@windstream.com	Aerial-Buried Telephone	Entire Project	N/A	N/A	N/A
Comcast	Christopher.bates2@comcast.com	Aerial-Buried CATV	Entire Project	N/A	N/A	N/A

Note: *To add additional rows, click the bottom right corner of the box above, then click the blue* + *that will appear. Please add additional rows prior to entering text.*

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE

Project No: **n/a** Offic **GAINESVILLE**
County **Banks** Date: **August 23, 2018**
P.I.# **001600**

Description: ***SR 15 fm Jackson County Line to I-85 - MedianWork***

FROM Robby Oliver, District Utilities Manager

TO Heidi Schneider, Project Manager

SUBJECT **PRELIMINARY UTILITY COST ESTIMATE**

A review of utilities located on the above referenced project has been conducted with Concept Layout plans. Listed below is a breakdown of the anticipated reimbursable and non-reimbursable cost.

Utility Owner		Reimbursable	Non-Reimbursable	Estimate Based on
Banks County Water	**	$0.00	$0.00	Site Visit / Available Drawings
City of Commerce Water/Sewer	**	$0.00	$0.00	Site Visit / Available Drawings
City of Commerce Gas	**	$0.00	$0.00	Site Visit / Available Drawings
City of Commerce Internet		$0.00	$0.00	Site Visit / Available Drawings
Georgia Power-Distribution		$0.00	$0.00	Site Visit / Available Drawings
Georgia Power-Transmission		$0.00	$0.00	Site Visit / Available Drawings
Jackson EMC		$0.00	$0.00	Site Visit / Available Drawings
Windstream Telephone		$0.00	$0.00	Site Visit / Available Drawings
Comcast		$0.00	$0.00	Site Visit / Available Drawings
Total	100.00%	$0.00	$0.00	
Department Responsibility	100.00%	$0.00		
Local Sponsor Responsibility	0.00%	$0.00		PFA Dated N/A with N/A

** Indicates Potential Utility Aid Request from Local Gov't

Estimate is based on the best available information at the current stage and no conflicts with the listed utilities are anticipated at this time.

If additional information is needed, please contact Robby Oliver at 770-533-8320.

cc: Patrick Allen, State Utilities Administrator
Yulonda Pride-Foster, State Utilities Preconstruction Manager
Ashlyn Morgan, Designer
Brandon Kirby, District Preconstruction Engineer
Robert Simpson, Area Manager
File

ATKINS
Member of the SNC-Lavalin Group

1600 RiverEdge Parkway,
NW, Suite 600
Atlanta, GA 30328-4612
770.933.0280
Atkinsglobal.com
SNCLavalin.com

September 28, 2018

Heidi Schneider
GDOT Project Manager
GDOT OFFICE OF PROGRAM DELIVERY
600 West Peachtree Street
Suite 1550
Atlanta, GA 30308

SUBJECT: Description of Cost Increase for PI No. 0016000; SR 15/US 441 from Jackson County line to I-85 northbound ramps, located in Banks County, Georgia

Dear Ms. Schneider:

The intent of this letter is to provide justification to the increased construction cost shown in the current concept report compared to what's shown in GDOT's programmed cost database. The current construction programed estimate is $550,000. As part of our conceptual layout, estimated quantities with associated costs were put into GDOT's Cost Estimating System (CES) using the most recent construction bid item costs. As a result, the estimated construction cost comes to $2,179,370.49. This cost is consistent with other projects in the state.

Sincerely,

ATKINS North America, Inc.

Scott Shelton,P.E.
Project Manager

Concept Team Meeting Minutes

Meeting Minutes

PROJECT:	**US 441/SR 15 from Jackson Co Line to CR 18/Faulkner Road**
PROJECT # & P.I. NO:	**PI No. 0015670 & PI 0016000, Banks Co**
PURPOSE:	**Concept Team Meeting**
DATE:	**August 28, 2018**
TIME:	**1:30 pm**
LOCATION:	**District 1 Area 3 Office**

ATTENDEES:

Names	Organization / Title	Phone Number	Email Address
See Sign In Sheet			

I. The PM provided an overview of the two projects: PI 0015670 & PI 0016000. Although they are two separate GDOT projects, they are the two phases for the median work along US 441/SR 15. PI 0015670 is Phase I and is the high priority project. PI 0016000 is Phase II and will be constructed after PI 0015670. The concept report will include both projects.

II. Project Overview

a. PI 0015670 proposes the installation of a concrete median along US 441/SR 15 from I-85 north to Faulkner Road. It also includes the realignment of Steven B. Tanger Blvd. A portion of Steven B. Tanger Blvd. will be realigned on new alignment to the north and tie into Faulkner Road.

b. PI 0016000 proposes the installation of a concrete median along US 441/SR 15 from the Jackson County Line north to I-85.

III. Concept Report

a. The purpose of both projects is to improve the safety along US 441/SR 15 by reducing the ability to cross traffic through the use of a limited number of left turns.

b. Typical Sections

i. The typical sections need to be revised for Steven B Tanger Blvd. Currently, the typical section is not matching the table for design features in the report.

ii. The typical sections need to be updated to show am integral concrete median with mill and inlay on US 441/SR 15.

iii. Currently the typical sections are showing left turn lanes that 8-foot wide with a 6-foot median. The lane width is not sufficient to address large trucks and their turn movements.

1. A suggestion was made to reduce the existing lane widths to 11-foot wide to allow for a wider turn lane without widening the roadway.

2. This needs to be evaluated for every intersection with a left turn lane.

c. Intersection Control

i. Vehicles will not be allowed to U-turn on the I-85 Bridge.

PI 0015670

ii. Dedicated left turn lanes, on all approaches, are needed at the intersection of Faulkner Rd at US 441/SR 15.

PI 0016000

iii. An Intersection Control Evaluation (ICE) analysis may be needed for the US 441/SR 15 intersections at both Pottery Factory Drive and at Industrial Park Drive. TMC will confirm that this is needed.

1. There is a fire station, recycling plant, residential subdivisions and anticipated industrial growth along Industrial Park Dr. This is why a signal has been requested at this location by Banks County.

iv. There is a signal at US 441/SR 15 and Pottery Factory Drive. Banks County has stated that a signal is also needed at US 441/SR 15 at Industrial Park Dr. However, these two intersections are located approximately 650 feet apart. A second signal cannot be located at Industrial Park.

1. A suggestion for an R-cut at Pottery Factory Dr. and a signal at Industrial Park Dr. was made. This is not a viable solution because US 441/SR 15 is an urban roadway and a minimum spacing requirements for a median break.

2. D1 Traffic recommended one traffic signal with a longer left turn lane.

3. Another suggestion was a left turn at the QuikTrip (QT) and jug handle at Industrial Park Dr. However, this does not meet the minimum distance requirement for a median break and would require a design variance and right-of-way (ROW).

4. A fourth suggestion was to move the signal from QT/Pottery Factory Dr to Industrial Park Dr and allow for U-turns at this signal. Then, the driveway at QT/Pottery Factory Drive would be converted to a right in/right out access. Vehicles would have the option to utilize the existing connectivity between the shopping center in which QT is located and Industrial Park Dr.

5. The last suggestion is to allow for U-turns at either the median break located just south of Jaemore Farms or at the left run lane into the BIC

Car wash. Either one may require ROW. This option may be able to be done by the District via a Quick Response (QR) project.

6. These options will be evaluated during preliminary design.

d. Additional Sidewalk

PI 0015670

i. A new segment of sidewalk will be constructed along the western side of US 441/SR 15. It will extend from the Wendy's driveway to the intersection of Faulkner Road and US 441/SR 15. Currently, there isn't a sidewalk at this location. This will provide connectivity to the existing sidewalk system.

e. Right-of-Way

PI 0015670

i. It is anticipated that driveway easements will be required along US 441/SR 15.

ii. In order to avoid a split phase signal, the new Faulkner/Tanger BLVD should include turn lanes to better align with the opposing drive. This may require additional ROW.

iii. ROW may be required along the realigned portion of Steven B. Tanger Blvd due to the steep hillside and potential cut line.

iv. ROW will be needed to construct a temporary driveway access to the commercial pool retailer located in the NW quadrant at Faulkner Road and U S441/SR 15.

v. The existing drainage system along US441/SR 15 contains several 15" drainage pipes. These are inadequate and the drainage system will most likely need to be upgraded/reconstructed. This will require, at a minimum, an easement to reconstruct drainage and incidentals (sidewalk, curb and gutter).

PI 0016000

vi. The driveway at Sonny's BBQ is not signalized. The driveway will have to be reconstructed to right-in and right-out only. ROW will be required.

vii. Driveway easements will be required along US 441/SR 15.

viii. ROW will be required if a jug handle is included with the project.

ix. The existing drainage system along US441/SR 15 contains several 15" drainage pipes. These are inadequate and the drainage system will most likely need to be upgraded/reconstructed. There are already documented flooding issues during heavy rain events in this area. This will require, at a minimum, an easement to reconstruct drainage and incidentals (sidewalk, curb and gutter).

f. Maintenance of Traffic during Construction

   i. Based on the meeting with Banks County on 8/16/18, construction would start after the holiday season in January. This will be written into a Special Provision for the construction contract.

g. Constructability

   i. A constructability meeting will be held during preliminary design.

h. Schedule

   PI 0015670

   i. Project is scheduled to Let in June 2020 (Fiscal Year 2020). However, construction will be delayed until early 2021 due to not disrupting the holiday retail traffic.

   PI 0016000

   ii. A schedule is in development. The Let date has not been determined.

The meeting minutes were recorded by Heidi Schneider, GDOT PM.

GDOT Georgia Department of Transportation

PI 0015670 & PI 0016000, Banks Co.

SIGN-IN SHEET **Concept Team Meeting**

Please Print **August 28, 2018**

Name	Company/Title	E-Mail
Heidi Schneider	OPD / GDOT PM	hschneider@dot.ga.gov
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Hunter Boyle	GDOT	Hboyle@dot.ga.gov
SueAnne Decker	GDOT D1 Traffic	sdecker@dot.ga.gov
Galen Davis	GPC	gdavis@southernco.com

ICE Reports & Waivers

GDOT INTERSECTION CONTROL EVALUATION (ICE) TOOL

ICE Version 2.13 | Revised 03/12/2018

GDOT PI # (or N/A): 0015670 Request By: GDOT TMC

County: Banks GDOT District: 1 - Gainesville

Major (State) Road: SR 15 Speed Limit: 45 mph

Minor (Crossing) ST: Access Road Speed Limit: 35 mph

Major ST Direction: North/South Area Type: Urban

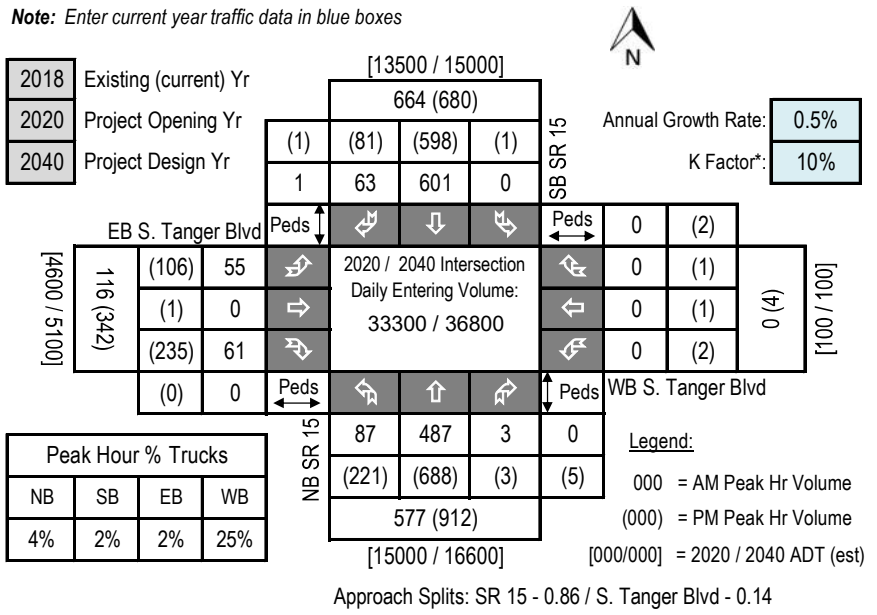
Intersection Control: Signal (turn lanes on mainline)

Prepared By: Atkins Analyst: T. Brewer

Date: 6/25/2018 Project ID: 5047

Proj Purpose: To improve safety at an intersection

Note: *Enter current year traffic data in blue boxes*



* K Factor = proportion of annual average daily traffic occurring in the peak hour

Introduction: In 2005, SAFETEA-LU established the Highway Safety Improvement Program (HSIP) and mandated that each state prepare a Strategic Highway Safety Plan (SHSP) to prioritize safety funding investments. Intersections quickly became a common component of most states' SHSP emphasis areas and HSIP project lists, including Georgia's SHSP. Intersection Control Evaluation (ICE) policies and procedures represent a traceable and transparent procedure to streamline the evaluation of intersection control alternatives, and further leverage safety advancements for intersection improvements beyond just the safety program. Approximately one-third of all traffic fatalities and roughly seventy five percent of all traffic crashes in Georgia occur at or adjacent to intersections. Accordingly, the Georgia SHSP includes an emphasis on enhancing intersection safety to advance the *Toward Zero Deaths* vision embraced by the Georgia Governor's Office of Highway Safety (GOHS). This ICE tool was developed to support the ICE policy, developed and adopted to help ensure that intersection investments across the entire Georgia highway system are selected, prioritized and implemented with defensible benefits for safety towards those ends.

Tool Goal: The goal of this ICE tool is to provide a simplified and consistent way of importing traffic, safety, cost, environmental impact and stakeholder posture data to assess and quantify intersection control improvement benefits. The tool supports the ICE policy and procedures to provide traceability, transparency, consistency and accountability when identifying and selecting an intersection control solution that both meets project purpose and reflects overall best value in terms of specific performance-based criteria.

Requirements: An ICE is required for any intersection improvement (e.g. new or modified intersection, widening/reconstruction or corridor project, or work accomplished through a driveway or encroachment permit that affects an intersection) where: **1)** the intersection includes at least one roadway designated as a State Route (State Highway System) or as part of the National Highway System; or **2)** the intersection will be designed or constructed using State or Federal funding. In certain circumstances where an ICE would otherwise be required, the requirement may be waived based on appropriate evidence presented with a written request. (See the **"Waiver"** tab to review criteria that may make a project waiver eligible and for instructions to submit a waiver request to the Department). An ICE is not required when the proposed work does not include any changes to the intersection design, involves only routine traffic signal timing and equipment maintenance, or for driveway permits where the driveway is not a new leg to an already existing intersection on either 1) a divided, multi-lane highway with a closed median and only right-in/right-out access or 2) an undivided roadway where the development is not required to construct left and/or right turn lanes (as per the Driveway Manual and District Traffic Engineer).

Two-Stage Process: A complete ICE process consists of two (2) distinct stages, and it is expected that the respective level of effort for completing both stages of ICE will correspond to the magnitude and complexity of the intersection. Prior to starting an ICE, the District Traffic Engineer and/or State Traffic Engineer should be consulted for advice on an appropriate level of effort. The Stage 1 and Stage 2 ICE forms are designed minimize required data inputs using drop-down menu choices and limiting text entry. All fields shaded grey include drop down menu choices and all fields shaded blue require data entry. All other cells in the worksheet are locked.

Stage 1: Screening Decision Record Stage 1 should be conducted as early in the project development process as possible and is intended to inform which alternatives are worthy of further evaluation in Stage 2. Stage 1 serves as a screening effort meant to *eliminate* non-competitive options and identify which alternatives merit further considerations based on their practical feasibility. Users should use good engineering judgement in responding to the seven policy questions by selecting "Yes" or "No" in the drop-down boxes. Alternatives should not be summarily eliminated without due consideration, and reasons for eliminating or advancing an alternative should be documented in the "Screening Decision Justification" column.

Stage 2: Alternative Selection Decision Record Stage 2 involves a more detailed and familiar evaluation of the alternatives identified in Stage 1 in order to support the selection of a preferred alternative that may be advanced to detailed design. Stage 2 data entry may require the use of external analysis tools to determine costs, operations and/or safety data that, combined with environmental and stakeholder posture data, form the basis of the ICE evaluation. A separate "CostEst" worksheet tab helps users develop pre-planning-level cost estimates for each Stage 2 alternative evaluated, and a separate Users Guide has been prepared to give guidance on Stage 1 and Stage 2 data entry. Once all data is entered, each alternative is scored and ranked, with the results reported at the bottom of the Stage 2 worksheet to inform on the best of the intersection controls evaluated for project recommendation.

Documentation: A complete ICE document consists of the combination of the outputs from either a completed and signed waiver form or both Stage 1 and Stage 2 worksheets (along with supporting costing and/or environmental documentation), to be included in the approved project Concept Report (or equivalent) or as a stand-alone document.

GDOT INTERSECTION CONTROL EVALUATION (ICE) WAIVER FORM

ICE Version 2.13 | Revised 03/12/2018

Waiver Request - Level 1

In certain circumstances where an ICE would otherwise be required, an ICE may be waived based on appropriate evidence presented with a written request. Scenarios in which an ICE waiver request may be considered include:

1. Proposed improvements do not substantially alter the character of the intersection, and are considered minor in nature, such as extending existing turn lane(s) or modifying signal phasing at an existing traffic signal
2. The intersection consists of a public roadway intersecting a divided, multilane roadway where the access will be limited to a closed median with only right-in/right-out access that will operate acceptably; or
3. The intersection is along an undivided, two-lane roadway that will not be widened and meets the following criteria:
   - Low risk in terms of exposure (total intersection entering volume less than 1,000 vehicles /day)
   - Latest 5 years of crash history is not indicative of a crash problem (no discernible crash patterns coupled with low crash frequency and severity)
   - Layout has no unusual or undesirable geometric features (such as restricted sight distance)
   - The proposed changes are not expected to adversely affect safety

If only one alternative is determined to be feasible from the ICE Stage 1, then a waiver may be submitted in lieu of completing ICE Stage 2. The waiver must clearly explain why there is no other feasible alternative. A Waiver Form should also be submitted to document an agreed upon decision to select a preferred alternative other than the highest scoring alternative in Stage 2.

ICE waiver forms with supporting documentation should be submitted for approval to the Office of Traffic Operations or District Engineer (depending on Waiver level). Questions regarding the waiver process should be routed to the State Traffic Engineer.

Project Information:

Location:	SR 15 @ Access Road	GDOT PI # (or N/A):	0015670
County:	Banks	Requested By:	GDOT TMC
GDOT District:	1 - Gainesville	Prepared By:	Atkins
Area Type:	Urban	Analyst:	T. Brewer
Existing Intersection Control:	Signal (turn lanes on mainline)	Date:	6/25/2018
		Waiver Request Type:	GDOT PDP Project

Traffic and Operations Data:[1]

Intersection meets signal/AWS warrants?	None	
Traffic Analysis Type:	Intersection Delay	
Existing Avg Daily Traffic (Major Street):	21,200	
Existing Avg Daily Traffic (Minor Street):	6,190	
Analysis Period:	AM Peak	PM Peak
2020 Opening Yr Peak Hour Intersection Delay:	0.0 sec	0.0 sec
2020 Opening Yr Peak Hour Intersection V/C:	0.00	0.00
2040 Design Yr Peak Hour Intersection Delay:	0.0 sec	0.0 sec
2040 Design Yr Peak Hour Intersection V/C:	0.00	0.00

[1]Crash data required for all existing intersections. ADT's required if available (from data collected or nearest GDOT count station site). Capacity data is optional unless needed to justify basis of the waiver request.

Crash Data (Required):[1]

	Crash Data *:Enter 5 most recent years of intersection crash data*	*Crash Severity*		
		PDO	Injury Crash*	Fatal Crash*
Crash Type	Angle	20	8	0
	Head-On	1	2	0
	Rear End	40	7	0
	Sideswipe - same	2	1	0
	Sideswipe - opposite	0	0	0
	Not Collision w/Motor Veh	3	1	0
	TOTALS:	**66**	**19**	**0**

* Number of crashes resulting in injuries / fatalities, not number of persons

Description of Work / Justification for Waiver (Required): PI 0015670 proposes to instal a raised concrete median along the project limits on SR 15. As a result, the signalized intersection at Steven B Tanger Blvd will be turned into a right in-right out intersection and the signal will be moved to Faulkner Rd. The median is expected to improve safety along the corridor and at the intersection of Tanger Blvd by incorporating access management. Therefore, an ICE waiver is requested.

Proposed Intersection Control: RIRO w/down stream U-Turn

REQUESTED BY: Ashlyn Morgan Date: 6/26/2018

Title: Project Manager

APPROVED BY: _____ Date: _____

Name: _____

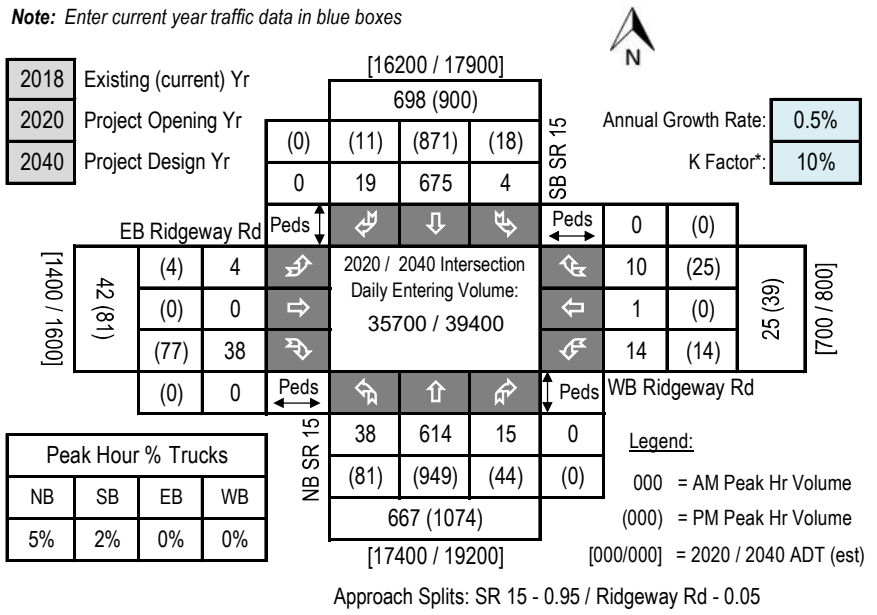
Chief Engineer or (Approved Delegate)

GDOT INTERSECTION CONTROL EVALUATION (ICE) TOOL

ICE Version 2.13 | Revised 03/12/2018

GDOT PI # (or N/A):	0015670	Request By:	GDOT TMC
County:	Banks	GDOT District:	1 - Gainesville
Major (State) Road:	SR 15	Speed Limit:	45 mph
Minor (Crossing) ST:	Ridgeway Rd	Speed Limit:	< 35 mph
Major ST Direction:	North/South	Area Type:	Urban
Intersection Control:	Conventional (Minor Stop)		
Prepared By:	Atkins	Analyst:	T. Brewer
Date:	6/25/2018	Project ID:	5047
Proj Purpose:	To improve safety at a minor stop controlled intersection		

Note: *Enter current year traffic data in blue boxes*



Approach Splits: SR 15 - 0.95 / Ridgeway Rd - 0.05

* K Factor = proportion of annual average daily traffic occurring in the peak hour

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GDOT INTERSECTION CONTROL EVALUATION (ICE) WAIVER FORM

ICE Version 2.13 | Revised 03/12/2018

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Project Information:

Location:	SR 15 @ Ridgeway Rd	GDOT PI # (or N/A):	0015670
County:	Banks	Requested By:	GDOT TMC
GDOT District:	1 - Gainesville	Prepared By:	Atkins
Area Type:	Urban	Analyst:	T. Brewer
Existing Intersection Control:	Conventional (Minor Stop)	Date:	6/25/2018
		Waiver Request Type:	GDOT PDP Project

Traffic and Operations Data:[1]

Intersection meets signal/AWS warrants?	None	
Traffic Analysis Type:	Intersection Delay	
Existing Avg Daily Traffic (Major Street):	21,200	
Existing Avg Daily Traffic (Minor Street):	1,500	
Analysis Period:	AM Peak	PM Peak
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2020 Opening Yr Peak Hour Intersection V/C:	0.00	0.00
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Crash Type	Angle	10	9	0
	Head-On	1	1	0
	Rear End	6	0	0
	Sideswipe - same	2	0	0
	Sideswipe - opposite	1	0	0
	Not Collision w/Motor Veh	0	0	0
	TOTALS:	**20**	**10**	**0**

* Number of crashes resulting in injuries / fatalities, not number of persons

Description of Work / Justification for Waiver (Required): PI 0015670 proposes to instal a raised concrete median along the project limits on SR 15. As a result, the intersection at Ridgeway Rd/Eisenhower Dr will be turned into a right in-right out intersection with a downstream u-turn. The median is expected to improve safety along the corridor and at the intersection of Ridgeway Rd/Eisenhower Dr by incorporating access management. Therefore, an ICE waiver is requested.

Proposed Intersection Control: RIRO w/down stream U-Turn

REQUESTED BY: Ashlyn Morgan Date: 6/26/2018

Title: Project Manager

APPROVED BY: _____ Date: _____

Name: _____

Chief Engineer or (Approved Delegate)

GDOT INTERSECTION CONTROL EVALUATION (ICE) TOOL

ICE Version 2.13 | Revised 03/12/2018

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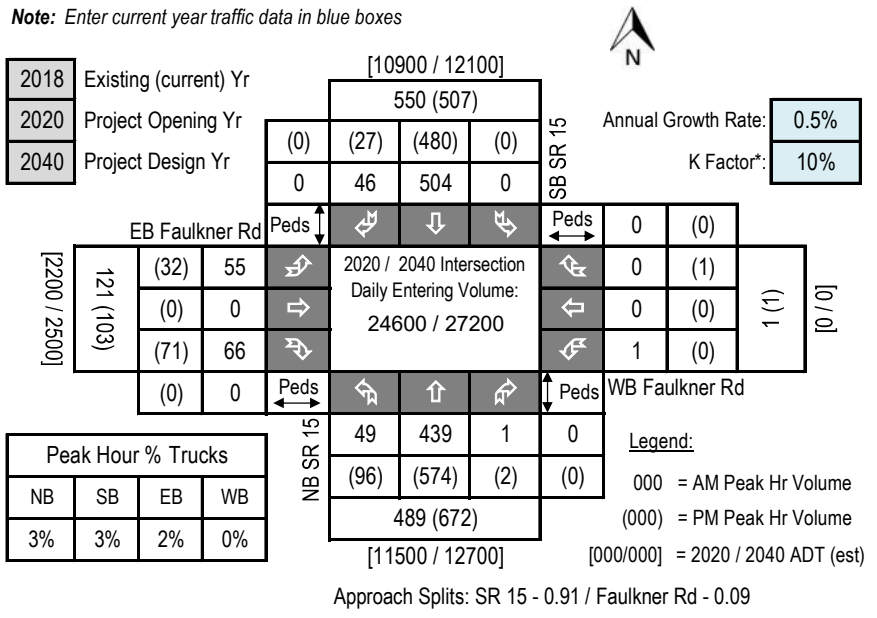

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GDOT ICE STAGE 1: SCREENING DECISION RECORD

ICE Version 2.13 | Revised 03/12/2018

GDOT PI #	0015670
Project Location:	SR 15 @ Steven B Tanger Blvd
Prepared by:	Atkins
Analyst:	T.Brewer
Date:	6/25/2018

Answer "Yes" or "No" to each policy question for each control type to identify which alternatives should be evaluated in the Stage 2 Decision Record; enter justification in the rightmost column

Note: Up to 5 alternatives may be selected and evaluated; Use this ICE Stage 1 to screen 5 or fewer alternatives to evaluate in Stage 2

	Intersection Alternative (see "Intersections" tab for detailed description of intersection/interchange type)	1. Does alternative address the project need in a balanced manner and in scale with the project?	2. Does alternative improve safety performance in terms of reducing severe crashes?	3. Does alternative incorporate safety, convenience and accessibility for pedestrians and/or bicyclists?	4. Does alternative improve (or preserve) traffic operations (congestion, delay, reliability, etc.)?	5. Does alternative appear feasible given the site characteristics, constrains & location context?	6. Does alternative appear feasible with respect to other project factors?	7. Overall feasible alternative (select alternative for further evaluation in Stage 2)?	**Screening Decision Justification:**
Unsignalized Intersections	Conventional (Minor Stop)	No	No	No	No	No	No	No	Existing Condition
	Conventional (All-Way Stop)	No	No	No	No	No	No	No	Would cause significant delay on mainline
	Mini Roundabout	No	No	No	No	No	No	No	Multilane approaches on SR 15
	Single Lane Roundabout	No	No	No	No	No	No	No	Multilane approaches on SR 15
	Multilane Roundabout	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Potential Alternative to Evaluate**
	RCUT (stop control)	**Yes**	**Yes**	**No**	**No**	**Yes**	**Yes**	**Yes**	**Potential Alternative to Evaluate**
	RIRO w/down stream U-Turn	No	No	No	No	No	No	No	Would cause significant delay due to high volume of left turns on mainline
	High-T (unsignalized)	No	No	No	No	No	No	No	Not a T-intersection
	Offset-T Intersections	No	No	No	No	No	No	No	would incur significant ROW costs due to businesses that line SR 15
	Diamond Interch (Stop Control)	No	No	No	No	No	No	No	N/A - not an interchange
	Diamond Interch (RAB Control)	No	No	No	No	No	No	No	N/A - not an interchange
	No LT Lane Improvements No RT Lane Improvements No Median Improvements	No	No	No	No	No	No	No	N/A
	Other Unsignalized (provide description):	No	No	No	No	No	No	No	N/A
Signalized Intersections	Traffic Signal	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Potential Alternative to Evaluate**
	Median U-Turn (Indirect Left)	No	No	No	No	No	No	No	Would cause significant delay due to high volume of left turns on mainline
	RCUT (signalized)	No	No	No	No	No	No	No	
	Displaced Left Turn (CFI)	No	No	No	No	No	No	No	volumes and context not to scale
	Continuous Green-T	No	No	No	No	No	No	No	Not a T-intersection
	Jughandle	No	No	No	No	No	No	No	would incur significant ROW costs due to businesses that line SR 15
	Quadrant Roadway	No	No	No	No	No	No	No	would incur significant ROW costs due to businesses that line SR 15
	Diamond Interch (Signal Control)	No	No	No	No	No	No	No	N/A - not an interchange
	Diverging Diamond	No	No	No	No	No	No	No	N/A - not an interchange
	Single Point Interchange	No	No	No	No	No	No	No	N/A - not an interchange
	No LT Lane Improvements No RT Lane Improvements No Median Improvements	No	No	No	No	No	No	No	N/A
	Other Signalized (provide description):	No	No	No	No	No	No	No	N/A

= Intersection type selected for more detailed analysis in Stage 2 Alternative Selection Decision Record

GDOT ICE STAGE 2: ALTERNATIVE SELECTION DECISION RECORD

ICE Version 2.13 | Revised 03/12/2018

GDOT PI # (or N/A): 0015670
GDOT District: 1 - Gainesville
Date: 6/25/2018
County: Banks
Area Type: Urban
Agency/Firm: Atkins
Project Location: SR 15 @ Steven B Tanger Blvd
Analyst: T.Brewer
Existing Intersection Control: Conventional (Minor Stop)
Type of Analysis: Safety Funded Project

Opening / Design Year Traffic Operations

Intersection meets signal/AWS warrants?	Meets Signal Warrants	
Traffic Analysis Measure of Effectiveness	Intersection Delay	
Traffic Analysis Software Used	Synchro 9	
Analysis Time Period	AM Peak Hr	PM Peak Hr
2020 Opening Yr No-Build Peak Hr Intersection Delay	22.9 sec	161.6 sec
2020 Opening Yr No-Build Peak Hr Intersection V/C ratio	1.27	4.49
2040 Design Yr No-Build Peak Hr Intersection Delay	118.5 sec	937.3 sec
2040 Design Yr No-Build Peak Hr Intersection V/C ratio	3.28	20.50

Complete Streets Warrants Met?

- ☐ PEDESTRIANS
- ☐ BICYCLES
- ☐ TRANSIT

Crash Type — **Crash Data:** *Enter 5 most recent years of intersection crash data*	Crash Severity: PDO	Injury Crash*	Fatal Crash*	
Angle	8	4	0	55%
Head-On	0	0	0	0%
Rear End	7	0	0	32%
Sideswipe - same	0	0	0	0%
Sideswipe - opposite	1	0	0	5%
Not Collision w/Motor Veh	1	1	0	9%
TOTALS:	17	5	0	22

* Number of crashes resulting in injuries / fatalities, not number of persons

Alternatives Analysis:

	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Proposed Control Type/Improvement:	Multilane Roundabout	RCUT (stop control)	Traffic Signal		
Project Cost: (From CostEst Worksheet)	*Additional description here*	*Additional description here*	*Add LT bays (2) on Minor ST*		
Construction Cost	$1,955,000	$647,000	$395,000		
ROW Cost	$96,000	$28,000	$0		
Environmental Cost	$0	$0	$0		
Reimbursable Utility Cost	$62,000	$23,000	$19,000		
Design & Contingency Cost	$581,000	$167,000	$138,000		
Cost Adjustment (justification req'd)	0%	0%	0%		
Total Cost	$2,694,000	$865,000	$552,000		
Traffic Operations:					
Traffic Analysis Software Used	GDOT RND Tool 4.1	Synchro 9	Synchro 9		
Analysis Period	AM Peak Hr / PM Peak Hr	AM Peak Hr / PM Peak Hr	AM Peak Hr / PM Peak Hr		
2040 Design Yr Build Intersection Delay	10.2 sec / 12.7 sec	27.7 sec / 27.7 sec	9.6 sec / 11.7 sec		
2040 Design Yr Build Intersection V/C	0.44 / 0.56	0.75 / 0.75	0.57 / 0.68		
Safety Analysis:					
Predefined CRF: PDO	63%	20%	39%		
Predefined CRF: Fatal/Inj	63%	36%	40%		
Predefined CRF Source:	FHWA Clearinghouse #s 4927 / 4927	FHWA Clearinghouse #s 351 / 353	FHWA Clearinghouse #s 7982 / 7984		
User Defined CRF: PDO					
User Defined CRF: Fatal/Inj					
User Defined CRF Source (write in if applicable):					
Environmental Impacts:[1]					
Historic District/Property	None	None	None		
Archaeology Resources	None	None	None		
Graveyard	None	None	None		
Stream	None	None	None		
Underground Tank/Hazmat	None	None	None		
Park Land	None	None	None		
EJ Community	None	None	None		
Wooded Area	None	None	None		
Wetland	None	None	None		
	*Note: If environmental impact is significant (**RED**), provide justification impact won't jeopardize project delivery using "Env" worksheet*				
Stakeholder Posture:	[1] *Environmental impacts are only preliminary estimates; detailed environmental impact documentation will be included with project concept report*				
Local Community Support	Unknown	Unknown	Unknown		
GDOT Support	Unknown	Unknown	Unknown		
Final ICE Stage 2 Score:	6.2	5.7	6.8		
Rank of Control Type Alternatives:	2	3	1		

Note: Stage 2 score is not given (shown as "**-**") if signal or AWS is selected as control type but respective warrants are not met

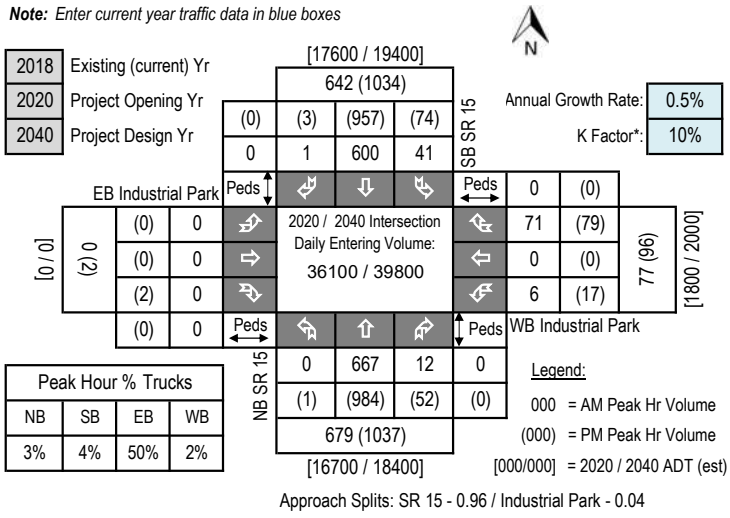
Provide additional comments and/or explain any unique analysis inputs, or results (as necessary):

GDOT INTERSECTION CONTROL EVALUATION (ICE) TOOL

ICE Version 2.13 | Revised 03/12/2018

GDOT PI # (or N/A):	0016000	Request By:	GDOT TMC
County:	Banks	GDOT District:	1 - Gainesville
Major (State) Road:	SR 15	Speed Limit:	45 mph
Minor (Crossing) ST:	Industrial Park	Speed Limit:	40 mph
Major ST Direction:	North/South	Area Type:	Urban
Intersection Control:	Conventional (Minor Stop)		
Prepared By:	Atkins	Analyst:	T. Brewer
Date:	6/25/2018	Project ID:	5047
Proj Purpose:	To improve safety at a minor stop controlled intersection		

Note: *Enter current year traffic data in blue boxes*



Peak Hour % Trucks			
NB	SB	EB	WB
3%	4%	50%	2%

* K Factor = proportion of annual average daily traffic occurring in the peak hour

Introduction: In 2005, SAFETEA-LU established the Highway Safety Improvement Program (HSIP) and mandated that each state prepare a Strategic Highway Safety Plan (SHSP) to prioritize safety funding investments. Intersections quickly became a common component of most states' SHSP emphasis areas and HSIP project lists, including Georgia's SHSP. Intersection Control Evaluation (ICE) policies and procedures represent a traceable and transparent procedure to streamline the evaluation of intersection control alternatives, and further leverage safety advancements for intersection improvements beyond just the safety program. Approximately one-third of all traffic fatalities and roughly seventy five percent of all traffic crashes in Georgia occur at or adjacent to intersections. Accordingly, the Georgia SHSP includes an emphasis on enhancing intersection safety to advance the *Toward Zero Deaths* vision embraced by the Georgia Governor's Office of Highway Safety (GOHS). This ICE tool was developed to support the ICE policy, developed and adopted to help ensure that intersection investments across the entire Georgia highway system are selected, prioritized and implemented with defensible benefits for safety towards those ends.

Tool Goal: The goal of this ICE tool is to provide a simplified and consistent way of importing traffic, safety, cost, environmental impact and stakeholder posture data to assess and quantify intersection control improvement benefits. The tool supports the ICE policy and procedures to provide traceability, transparency, consistency and accountability when identifying and selecting an intersection control solution that both meets project purpose and reflects overall best value in terms of specific performance-based criteria.

Requirements: An ICE is required for any intersection improvement (e.g. new or modified intersection, widening/reconstruction or corridor project, or work accomplished through a driveway or encroachment permit that affects an intersection) where: **1)** the intersection includes at least one roadway designated as a State Route (State Highway System) or as part of the National Highway System; or **2)** the intersection will be designed or constructed using State or Federal funding. In certain circumstances where an ICE would otherwise be required, the requirement may be waived based on appropriate evidence presented with a written request. (See the **"Waiver"** tab to review criteria that may make a project waiver eligible and for instructions to submit a waiver request to the Department). An ICE is not required when the proposed work does not include any changes to the intersection design, involves only routine traffic signal timing and equipment maintenance, or for driveway permits where the driveway is not a new leg to an already existing intersection on either 1) a divided, multi-lane highway with a closed median and only right-in/right-out access or 2) an undivided roadway where the development is not required to construct left and/or right turn lanes (as per the Driveway Manual and District Traffic Engineer).

Two-Stage Process: A complete ICE process consists of two (2) distinct stages, and it is expected that the respective level of effort for completing both stages of ICE will correspond to the magnitude and complexity of the intersection. Prior to starting an ICE, the District Traffic Engineer and/or State Traffic Engineer should be consulted for advice on an appropriate level of effort. The Stage 1 and Stage 2 ICE forms are designed minimize required data inputs using drop-down menu choices and limiting text entry. All fields shaded grey include drop down menu choices and all fields shaded blue require data entry. All other cells in the worksheet are locked.

Stage 1: Screening Decision Record Stage 1 should be conducted as early in the project development process as possible and is intended to inform which alternatives are worthy of further evaluation in Stage 2. Stage 1 serves as a screening effort meant to *eliminate* non-competitive options and identify which alternatives merit further considerations based on their practical feasibility. Users should use good engineering judgement in responding to the seven policy questions by selecting "Yes" or "No" in the drop-down boxes. Alternatives should not be summarily eliminated without due consideration, and reasons for eliminating or advancing an alternative should be documented in the "Screening Decision Justification" column.

Stage 2: Alternative Selection Decision Record Stage 2 involves a more detailed and familiar evaluation of the alternatives identified in Stage 1 in order to support the selection of a preferred alternative that may be advanced to detailed design. Stage 2 data entry may require the use of external analysis tools to determine costs, operations and/or safety data that, combined with environmental and stakeholder posture data, form the basis of the ICE evaluation. A separate "CostEst" worksheet tab helps users develop pre-planning-level cost estimates for each Stage 2 alternative evaluated, and a separate Users Guide has been prepared to give guidance on Stage 1 and Stage 2 data entry. Once all data is entered, each alternative is scored and ranked, with the results reported at the bottom of the Stage 2 worksheet to inform on the best of the intersection controls evaluated for project recommendation.

Documentation: A complete ICE document consists of the combination of the outputs from either a completed and signed waiver form or both Stage 1 and Stage 2 worksheets (along with supporting costing and/or environmental documentation), to be included in the approved project Concept Report (or equivalent) or as a stand-alone document.

GDOT INTERSECTION CONTROL EVALUATION (ICE) WAIVER FORM

ICE Version 2.13 | Revised 03/12/2018

Waiver Request - Level 1

In certain circumstances where an ICE would otherwise be required, an ICE may be waived based on appropriate evidence presented with a written request. Scenarios in which an ICE waiver request may be considered include:

1. Proposed improvements do not substantially alter the character of the intersection, and are considered minor in nature, such as extending existing turn lane(s) or modifying signal phasing at an existing traffic signal
2. The intersection consists of a public roadway intersecting a divided, multilane roadway where the access will be limited to a closed median with only right-in/right-out access that will operate acceptably; or
3. The intersection is along an undivided, two-lane roadway that will not be widened and meets the following criteria:
   - Low risk in terms of exposure (total intersection entering volume less than 1,000 vehicles /day)
   - Latest 5 years of crash history is not indicative of a crash problem (no discernible crash patterns coupled with low crash frequency and severity)
   - Layout has no unusual or undesirable geometric features (such as restricted sight distance)
   - The proposed changes are not expected to adversely affect safety

If only one alternative is determined to be feasible from the ICE Stage 1, then a waiver may be submitted in lieu of completing ICE Stage 2. The waiver must clearly explain why there is no other feasible alternative. A Waiver Form should also be submitted to document an agreed upon decision to select a preferred alternative other than the highest scoring alternative in Stage 2.

ICE waiver forms with supporting documentation should be submitted for approval to the Office of Traffic Operations or District Engineer (depending on Waiver level). Questions regarding the waiver process should be routed to the State Traffic Engineer.

Project Information:

Location:	SR 15 @ Industrial Park	GDOT PI # (or N/A):	0016000
County:	Banks	Requested By:	GDOT TMC
GDOT District:	1 - Gainesville	Prepared By:	Atkins
Area Type:	Urban	Analyst:	T. Brewer
Existing Intersection Control:	Conventional (Minor Stop)	Date:	6/25/2018
		Waiver Request Type:	GDOT PDP Project

Traffic and Operations Data:[1]

Intersection meets signal/AWS warrants?	None	
Traffic Analysis Type:	Intersection Delay	
Existing Avg Daily Traffic (Major Street):	21,200	
Existing Avg Daily Traffic (Minor Street):	1,200	
Analysis Period:	AM Peak	PM Peak
2020 Opening Yr Peak Hour Intersection Delay:	0.0 sec	0.0 sec
2020 Opening Yr Peak Hour Intersection V/C:	0.00	0.00
2040 Design Yr Peak Hour Intersection Delay:	0.0 sec	0.0 sec
2040 Design Yr Peak Hour Intersection V/C:	0.00	0.00

[1]Crash data required for all existing intersections. ADT's required if available (from data collected or nearest GDOT count station site). Capacity data is optional unless needed to justify basis of the waiver request.

Crash Data (Required):[1]

Crash Type	*Crash Data: Enter 5 most recent years of intersection crash data*	*Crash Severity* PDO	Injury Crash*	Fatal Crash*
	Angle	6	2	0
	Head-On	0	1	0
	Rear End	6	5	0
	Sideswipe - same	1	0	0
	Sideswipe - opposite	0	0	0
	Not Collision w/Motor Veh	0	0	0
	TOTALS:	**13**	**8**	**0**

* Number of crashes resulting in injuries / fatalities, not number of persons

Description of Work / Justification for Waiver (Required): PI 0015670 proposes to instal a raised concrete median along the project limits on SR 15. As a result, the intersection at Industrial Park Drive will be turned into a right in-right out intersection with a downstream u-turn. The median is expected to improve safety along the corridor and at the intersection of Industrial Park Dr by incorporating access management. Therefore, an ICE waiver is requested.

Proposed Intersection Control: RIRO w/down stream U-Turn

REQUESTED BY: Ashlyn Morgan Date: 6/26/2018

Title: Project Manager

APPROVED BY: _____ Date: _____

Name: _____

Chief Engineer or (Approved Delegate)

Memo

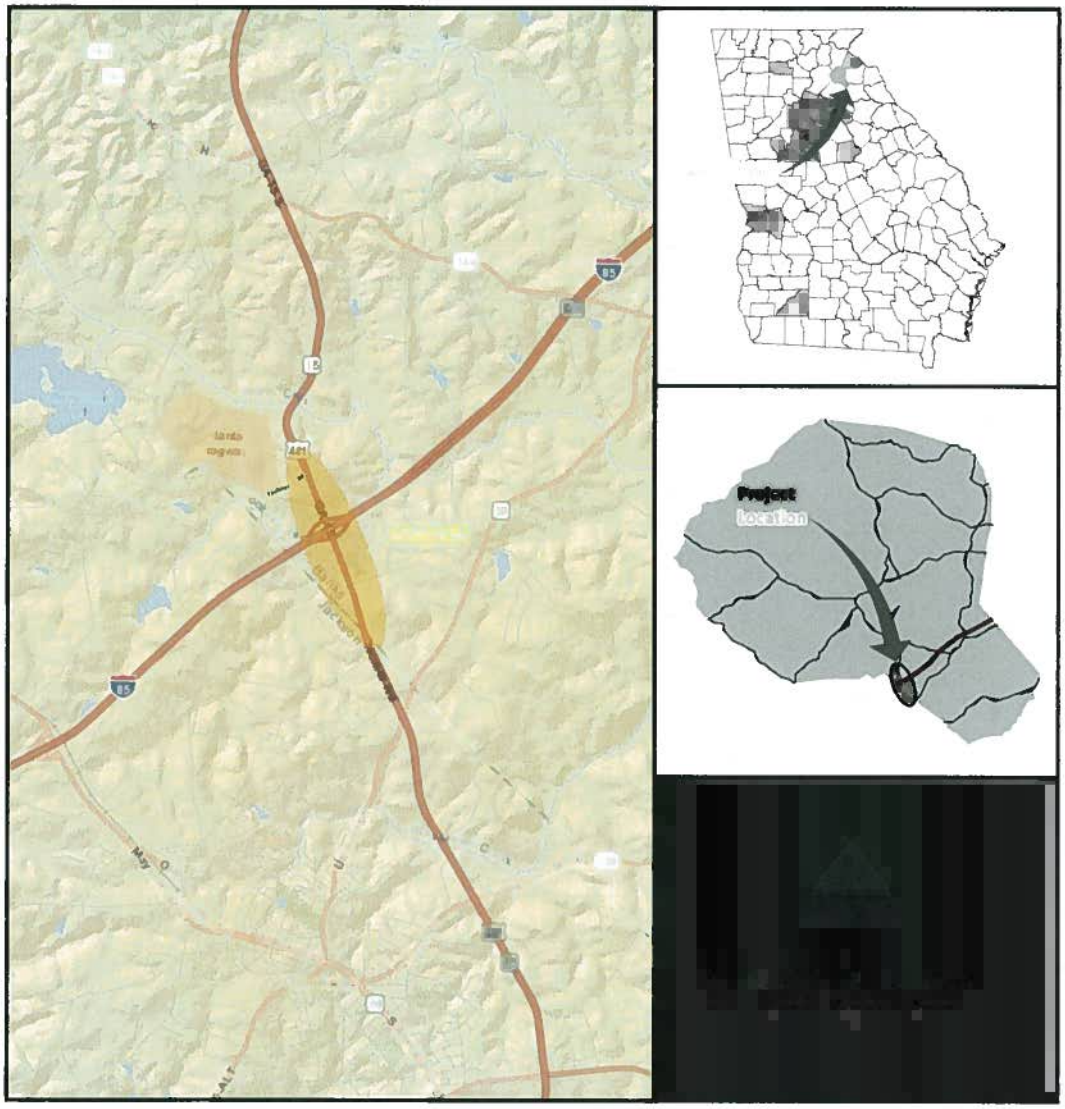
To:	GDOT		
From:	Atkins	**Date:**	September 12, 2018
Project:	PI 0016000	**County:**	Banks County
Subject:	ICE Reports for Pottery Factory Dr & Industrial Park Dr		

ICE reports for the intersection of SR 15/US 441 and Pottery Factory Drive, and at the intersection of SR 15/US 441and Industrial Park Drive are not being included in the Concept Report. Discussions at the concept team meeting indicated a potential need to shift the existing signal at Pottery Factory Drive to just south at the intersection with Industrial Park Drive. If the signal is not shifted, at a minimum an emergency median break would need to be provided at the Industrial Park Drive intersection to allow for emergency vehicles to turn left and proceed south along SR 15/US 441. Presently the traffic volumes for this road are out of date, so the ICE reports could not be completed at this time. It's anticipated that the traffic along the project corridor will be collected this fall. Once the traffic numbers have been approved, the ICE Reports for both intersections will be completed.

TE Study

Traffic Engineering Study

State Route 15 (SR 0015)/US 441 Corridor Study
from Jackson County Line to Faulkner Road (CR 0018)
Banks County, Georgia



Requested by: Georgia Department of Transportation, District 1

Date Prepared: 9/14/2017

Prepared by: Atkins

TABLE OF CONTENTS

INTRODUCTION

Highway safety improvement projects are intended to increase safety performance by minimizing or eliminating risk to roadway users. The identification of locations within a highway system that present potentially higher risk to roadway users is a critical component of achieving the Georgia Department of Transportation's (GDOT) ultimate goal of zero fatalities and injuries on Georgia's roadways. The roadway corridor located along State Route 15 (SR 15)/US 441 in Banks County, between the Jackson County Line and Faulkner Road represents one such opportunity, particularly due to the high density of commercial access points along SR 15/US 441. To improve safety and mobility, as well as non-motorized road user connectivity, GDOT commissioned the Atkins team to complete this traffic engineering study.

Project Location

The subject corridor, shown in **Figure 1**, along SR 15/US 441 is located in southern Banks County. The corridor begins at the Jackson County Line and extends approximately 1.4 miles north to Faulkner Road.

Reason for Investigation

This intersection is being investigated due to the relatively high frequency and severity of traffic crashes. Additionally, the implementation of a raised concrete median and realignment of two intersections along the corridor has been proposed. Therefore, safety and operational analyses are required to provide a quantitative assessment of the potential impact on all road users.

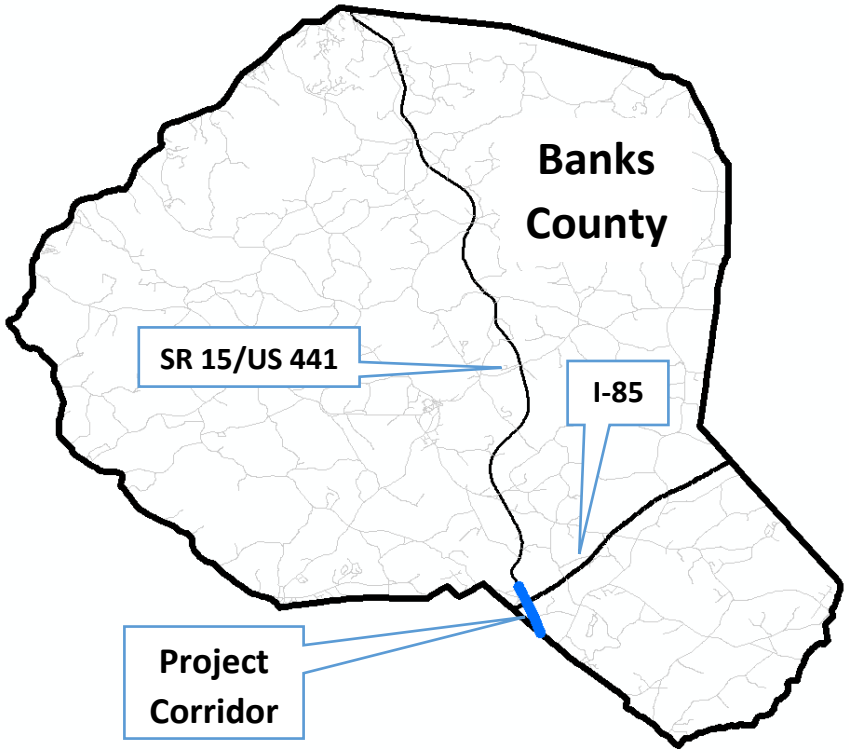


Figure 1. Project Corridor in Banks County, GA

LOCATION DESCRIPTION

SR 15/US 441 is a five-lane, undivided urban principal arterial, including a center two-way left-turn lane (LTL). This section of SR 15/US 441 is characterized by a high density of commercial development, resulting in a relatively high density of driveways and unsignalized offset intersections to provide access to the surrounding businesses. Additionally, continuous exclusive right-turn lanes are provided throughout most of the study corridor to reduce potential traffic conflicts related to vehicles accessing the adjacent developments. It should also be noted that signalized ramps to Interstate 85 (I-85) are located in the center of the study area. **Figure 2** provides a satellite view of the study corridor.

Figure 2. Satellite View of SR 15/US 441 Study Corridor – Banks County, GA

EXISTING CONDITIONS/FIELD VISIT

The Atkins team collected a variety of traffic engineering data specific to the project corridor, including historical traffic and crash data, current traffic counts, along with geometric and other roadway characteristics. A site visit was also conducted on January 25th, 2017, to collect existing conditions data and observe the project corridor in operation. The approximate 1.4-mile, five-lane undivided corridor incorporates 14 intersections, including five signalized intersections (shown in **Figure 3**) and nine unsignalized intersections.

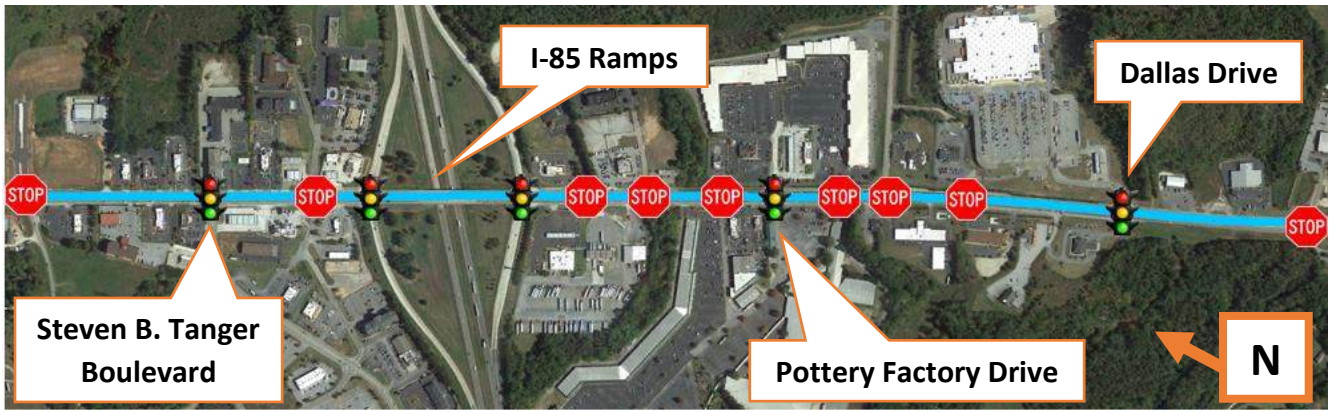


Figure 3. SR 15/US 441 Study Corridor – Highway Segments and Intersections

Traffic signals are currently implemented at the intersections with Dallas Drive, Pottery Factory Drive, the I-85 northbound and southbound ramps, and Steven B. Tanger Boulevard. The remaining nine intersections are controlled by stop signs on the minor approaches. Additionally, the study corridor includes a total of 36 driveways, representing a driveway density of approximately 25.7 access points per mile.

Traffic Volume History

To complete appropriate safety and operational analyses of the study corridor, it was necessary for the Atkins team to collect both historical and current traffic volume data. Historical daily traffic counts were collected from the online GDOT database specific to the SR 15/US 441 corridor from 2010 to 2015. This included eight

GDOT traffic count stations located within the immediate vicinity of the study corridor. **Table 1** summarizes these data.

Table 1: Historical AADT Volumes Adjacent to SR 15/US 441 Study Corridor, GDOT Online Database

Location of Count Station	Count Station Number	Year						Annual Percent Growth
		2010	2011	2012	2013	2014	2015	
SR 15 - Banks Road	0110103	11,280	11,010	10,920	10,943	11,300	12,000	1.2%
Frontage Rd to Tanger Outlet	0118044	-	5,190	5,110	4,970	5,780	6,040	3.9%
I-85 SB Off-Ramp at SR 15	011r601	3,610	3,490	2,840	2,860	2,860	3,000	-3.6%
I-85 SB On-Ramp at SR 15	011r602	4,070	3,930	3,790	3,820	3,820	4,010	-0.3%
I-85 NB Off-Ramp at SR 15	011r001	4,900	4,730	3,790	3,820	3,820	4,010	-3.9%
I-85 NB On-Ramp at SR 15	011r002	3,990	3,850	2,810	2,830	2,830	2,970	-5.7%
SR 15 - Pottery Factory Road	0110101	22,550	20,150	19,930	19,870	19,900	20,500	-1.9%
I-85 South of SR 15	0110136	43,890	42,620	43,370	-	70,200	49,300	2.4%

Traffic volumes in the vicinity of the study corridor have remained relatively consistent over the last six years, with some locations experiencing modest growth and some experiencing modest declines in traffic volume. While these historical traffic counts provide important context as to the recent trends in traffic volume adjacent to the SR 15/US 441 corridor, current traffic counts were necessary to perform appropriate safety and operational analyses. 24-hour classification counts were collected in January 2017 at three locations along with 12-hour turning movement counts specific to each intersection. Complete details of these traffic counts are provided in the appendix of this report. **Figure 4** summarizes the 24-hour classification count taken south of Hampton Court within the study corridor.

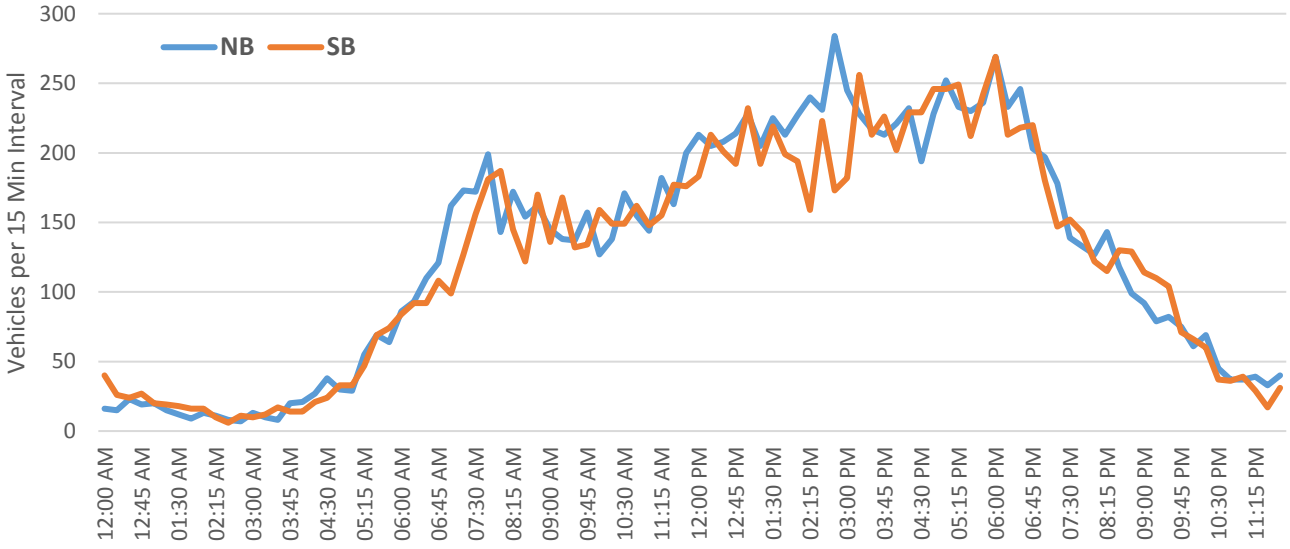


Figure 4. 24-Hour Classification Count – SR 15/US 441 South of Hampton Court

The study corridor exhibits a typical distribution of traffic flow with modest overnight flows increasing during the AM peak, maintaining steady flow throughout the day, and ultimately observing the overall peak in the afternoon. While the northbound direction did observe the highest flow rate during this count period, traffic volumes were generally balanced in each direction along the study corridor.

Existing Traffic Control

There are both signalized and unsignalized intersections present along the SR 15/US 441 study corridor. Signalized intersections along SR 15/US 441 within the corridor include:

- Dallas Drive (which also provides access to the Walmart Supercenter east of SR 15/US 441)
- Pottery Factory Drive (which also provides access to various developments east of SR 15/US 441)
- I-85 Northbound Ramps
- I-85 Southbound Ramps
- Steven B. Tanger Boulevard

The remaining intersections within the project corridor are unsignalized and controlled by stop signs on the minor approaches. Further, as previously indicated, there are numerous continuous right-turn deceleration lanes serving many of the commercial driveways in lengths that exceed 1,000 feet.

Adjacent Signalized Intersections

SR 15/US 441 is signalized at its intersection with Homer Road/SR 59, approximately 0.65 miles south of the project corridor. There are no other signalized intersections located close enough to impact the traffic operations within the corridor as SR 15/US 441 becomes a high-speed, divided highway north of the study area.

Vehicular Speeds

SR 15/US 441 is posted at 55 miles per hour (MPH) south of the intersection with Dallas Drive and 45 MPH north of Dallas Drive within the study area. Posted speeds for the relevant highway segments are summarized below:

- SR 15/US 441 (South of Dallas Drive) - 55 MPH
- SR 15/US 441 (North of Dallas Drive) - 45 MPH
- Steven B. Tanger Boulevard - 35 MPH
- E Ridgeway Road/Eisenhower Drive - Not Posted
- Hampton Court - Not Posted
- QuikTrip/Banks Crossing Drive - Not Posted
- Industrial Park Drive - 40 MPH
- Dallas Drive - Not Posted

Pedestrian Movements

Sidewalks are provided for most of the SR 15/US 441 project corridor, beginning in the southern portion of the corridor at Dallas Drive and ending just south of Faulkner Road. Crosswalks are provided at each of the five signalized intersections, including pedestrian signal heads.

Bicycle and pedestrian counts were collected at the study intersections within the project corridor for a 12-hour period, beginning at 6:30 AM and ending at 6:30 PM, in January 2017. These non-motorized counts are summarized in **Table 2,** including the number of crossings observed along each leg. While only a limited number of bicyclists were observed during the 12-hour period, a total of 350 pedestrian movements were observed. It should be noted that more than 70 percent of these movements involved crossing one of the minor legs.

Table 2. Bicycle and Pedestrian Movements, SR 15/US 441 Study Corridor (January 2017)

Intersection at SR 15/US 441	Mode	Street Crossings			
		Minor Street		Major Street (SR 15/US 441)	
		West Leg	East Leg	South Leg	North Leg
Funapolis Fun Center	Bicycles	0	0	0	0
	Pedestrians	1	5	0	0
Dallas Drive/Walmart Driveway	Bicycles	0	0	0	0
	Pedestrians	0	3	0	0
Sonny's BBQ/Walmart Driveway	Bicycles	0	0	0	0
	Pedestrians	0	8	2	1
Industrial Park Drive	Bicycles	0	0	0	0
	Pedestrians	11	11	2	0
Banks Crossing Drive	Bicycles	0	0	0	0
	Pedestrians	22	15	3	3
Pottery Rd/QuikTrip Driveway	Bicycles	0	0	0	0
	Pedestrians	10	9	6	8
Commerce Crossing (private)	Bicycles	1	0	0	0
	Pedestrians	5	0	0	1
Hampton Court/Truck Stop	Bicycles	0	0	0	0
	Pedestrians	9	12	15	4
Red Roof Inn Drive/Truck Stop	Bicycles	0	0	0	0
	Pedestrians	11	14	0	5
I-85 Northbound Ramps	Bicycles	2	0	0	0
	Pedestrians	15	14	16	0
I-85 Southbound Ramps	Bicycles	0	0	0	0
	Pedestrians	24	13	2	6
Eisenhower Drive	Bicycles	0	0	0	0
	Pedestrians	9	13	0	1
Steven B. Tanger Boulevard	Bicycles	0	0	0	0
	Pedestrians	3	8	13	12
Faulkner Road	Bicycles	0	0	0	0
	Pedestrians	3	2	0	0
Total Bicycle Movements		**3**	**0**	**0**	**0**
Total Pedestrian Movements		**123**	**127**	**59**	**41**

Other Modes of Transportation Present

There are no scheduled transit routes along the project corridor; however, Banks County does offer a rural public transportation service. Transit service in Banks County is available during the weekdays from 8:00 AM to 4:00 PM. Additionally, Banks County Transit operates on an advanced reservation basis. Truck percentages account for approximately 11 percent of the total vehicular traffic along SR 15/US 441 according to the counts collected by the Atkins team in January 2017. Design traffic factors are provided in the appendix to this report.

Planned Projects Adjacent to the Study Area

A project search was completed using GeoPI and there are no active GDOT projects within the study area; however, project 0015670 has been programmed to install the raised median on SR 15 from the Jackson County Line to Faulkner Road. There is a private development project which will realign Faulkner Road, remove the signal at Steven B. Tanger Boulevard, and add a signal at SR 15 and Faulkner. The study has been completed using this proposed configuration.

Parking

No on-street parking exists along the study corridor or the adjacent roadways. Parking for the surrounding businesses is primarily provided via surface lots adjacent to each facility.

CRASH HISTORY

To perform a comprehensive safety analysis, historical traffic crash data for the most recent five-year period (2012-2016) were collected from the Georgia Electronic Accident Reporting System. Traffic crashes were allocated spatially to study corridor highway segments or intersections based upon the coordinates associated with each record. **Table 3** provides a summary of the crash data, including fatal and injury (FI), property damage only (PDO), and non-motorized crashes specific to the SR-15/US-441 corridor**.**

Table 3. Summary of SR 15/US 441 Traffic Crash Data (2012-2016)

Location	Fatal	Injury	PDO	Total	Pedestrian	Bicycle
Segments	1	31	90	122	0	0
Intersections	2	162	412	576	6	0
Total Corridor	**3**	**193**	**502**	**698**	**6**	**0**

A total of 698 traffic crashes occurred during the study period, including three fatalities and 193 crashes resulting in an injury to a crash-involved occupant. **Figure 5** provides a heat map of traffic crash locations specific to the study corridor.

Figure 5. Heat Map of Traffic Crash Locations – SR 15/US 441 Study Corridor (2012-2016)

Six crashes involving pedestrians occurred during the study period resulting in one fatality and seven injuries (depicted in **Figure 6**). Despite the fact zero bicycle-related crashes occurred along the study corridor during this period, such road users should still be considered as a part of developing safety treatments due to the presence of bicycle movements noted in **Table 2**.

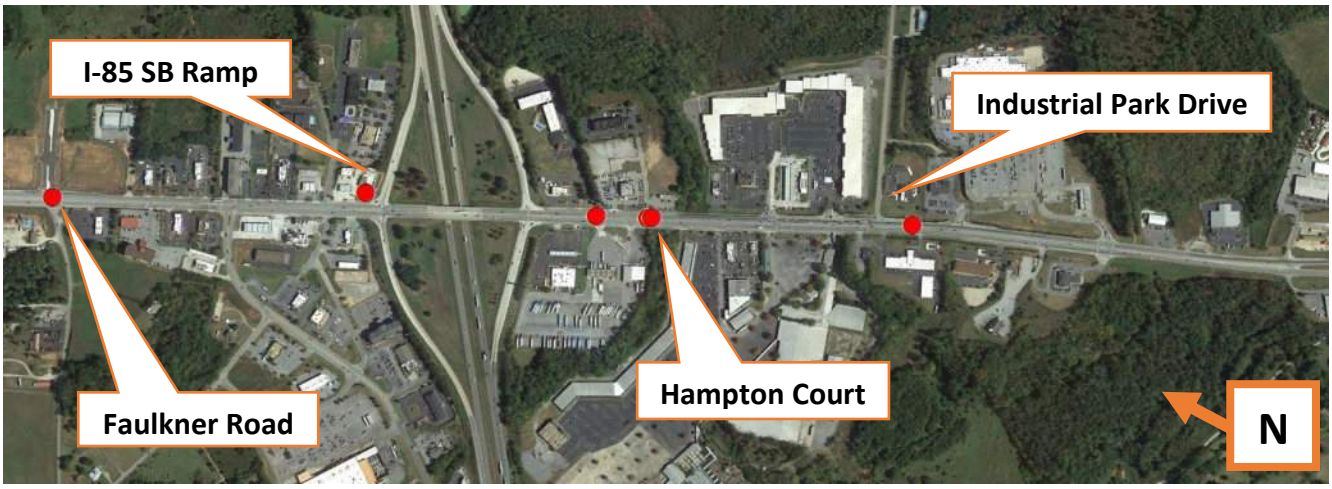


Figure 6. Location of Six Pedestrian Crashes – SR 15/US 441 Study Corridor (2012-2016)

Even though the pedestrian crashes are distributed throughout the study corridor, it is worth noting that a concentration of these crashes are observed adjacent to the uncontrolled intersection with Hampton Court. Three pedestrian-involved crashes, including the previously noted fatality, occurred due to pedestrians being struck by vehicles traveling along SR 15/US 441. Additionally, four of the six pedestrian crashes occurred at night time.

Tables 4 and 5 summarize the crash data specific to each segment and intersection along the study corridor, including the approximate traffic crash rates in addition to the number of FI and PDO crashes. Approximate AADTs were applied to each segment and an approximation of the daily entering vehicles were assigned to each intersection based upon the traffic counts collected by the Atkins team for the purpose of estimating crash rates.

Table 4. Summary of SR 15/US 441 Corridor Segment Traffic Crash Data (2012-2016)

Segment Description					Traffic Crashes				Traffic Crash Rates*		
Route	From Road	To Road	Length	AADT	Fatal	Injury	PDO	TOTAL	FI	PDO	TOTAL
SR-15	Funapolis	Dallas	0.20	25,650	0	10	15	25	106.8	160.2	267.0
SR-15	Dallas	Sonny's BBQ	0.16	21,950	0	6	32	38	93.6	499.3	592.9
SR-15	Sonny's BBQ	Industrial Park	0.09	26,450	0	0	0	0	0.0	0.0	0.0
SR-15	Industrial Park	Banks Crossing	0.05	28,550	0	0	0	0	0.0	0.0	0.0
SR-15	Banks Crossing	Pottery Factory	0.07	27,600	0	0	0	0	0.0	0.0	0.0
SR-15	Pottery Factory	Commerce Crossing	0.07	27,950	0	0	0	0	0.0	0.0	0.0
SR-15	Commerce Crossing	Hampton	0.08	27,700	0	1	5	6	24.7	123.6	148.4
SR-15	Hampton	Red Roof Inn	0.07	27,950	0	0	0	0	0.0	0.0	0.0
SR-15	Red Roof Inn	I-85 NB	0.07	28,400	0	0	0	0	0.0	0.0	0.0
SR-15	I-85 NB	I-85 SB	0.16	28,175	0	1	0	1	12.2	0.0	12.2
SR-15	I-85 SB	Eisenhower	0.06	27,950	0	0	0	0	0.0	0.0	0.0
SR-15	Eisenhower	Steven B. Tanger	0.11	25,750	0	4	21	25	77.4	406.2	483.6
SR-15	Steven B. Tanger	Faulkner	0.20	21,200	1	9	17	27	129.2	219.7	348.9
Total Corridor Segments			**1.39**	**26,560**	**1**	**31**	**90**	**122**	**49.0**	**137.9**	**187.0**

**Traffic crash rates are shown in crashes per 100M vehicle miles traveled*

Table 5. Summary of SR 15/US 441 Corridor Intersection Traffic Crash Data (2012-2016)

Intersection Description			Entering Vehicles		Traffic Crashes				Traffic Crash Rates*		
Major	Minor	Signal	Major	Minor	Fatal	Injury	PDO	TOTAL	FI	PDO	TOTAL
SR-15	Dallas	Yes	23,800	3,000	0	9	12	21	0.18	0.25	0.43
SR-15	Sonny's BBQ	No	24,200	2,500	0	4	16	20	0.08	0.33	0.41
SR-15	Industrial Park	No	27,500	1,550	0	9	11	20	0.17	0.21	0.38
SR-15	Banks Crossing	No	28,075	725	0	6	9	15	0.11	0.17	0.29
SR-15	Pottery Factory	Yes	27,775	3,775	0	16	35	51	0.28	0.61	0.89
SR-15	Commerce Crossing	No	27,825	1,325	1	17	36	54	0.34	0.68	1.02
SR-15	Hampton	No	27,825	450	1	4	11	16	0.10	0.21	0.31
SR-15	Red Roof Inn	No	28,175	100	0	7	22	29	0.14	0.43	0.56
SR-15	I-85 NB Ramps	Yes	28,290	4,925	0	32	86	118	0.53	1.42	1.95
SR-15	I-85 SB Ramps	Yes	28,060	3,550	0	20	59	79	0.35	1.02	1.37
SR-15	Eisenhower	No	26,850	1,800	0	16	37	53	0.31	0.71	1.01
SR-15	Steven B. Tanger	Yes	23,475	4,825	0	18	67	85	0.35	1.30	1.65
SR-15	Faulkner	No	15,200	1,950	0	4	11	15	0.13	0.35	0.48
Total Corridor Intersections		-	**25,927**	**2,344**	**2**	**162**	**412**	**576**	**0.24**	**0.61**	**0.86**

**Traffic crash rates shown in crashes per 1M entering vehicles*

Segment-related traffic crashes were considerable at the northern and southern edges of the corridor where commercial access is most prominent. Primarily, this occurs adjacent to the Walmart Supercenter on the south end of the corridor and at the retail developments north of the I-85 interchange. Intersection-related crashes were most pronounced at the signalized intersections within the corridor, particularly at the I-85 ramp termini. Also worth noting is the superior safety performance demonstrated by the signalized intersection at Dallas Drive, which experienced only 21 crashes during the five-year study period.

Even though traditional safety analysis techniques provide an important contextual understanding of existing safety performance, there are several limitations related to using these methodologies alone. To address this concern, the American Association of Highway Transportation Officials (AASHTO) Highway Safety Manual (HSM) outlines state-of-the-art Empirical Bayes (EB) methodology that considers the impact of changing traffic volumes, regression-to-the-mean bias, and other factors that potentially affect the frequency of traffic crashes. The EB-method combines a site's observed crash frequency with a predicted crash frequency developed using a statistical model, referred to as a safety performance function (SPF), to estimate an expected average crash frequency. Ultimately, the estimated predicted crash frequency is subtracted from the calculated expected crash frequency to determine excess expected crashes, or the number of expected crashes above or below crash frequencies for other similar facilities. Preliminary calibration factors developed by the Atkins team specific to GDOT Districts 1, 2 and 5 were used in the evaluation. **Table 6 and Figure 7** summarize the EB-method safety analysis results for the SR 15/US 441 corridor in terms of annual crash frequency.

Table 6. Summary of EB-Method Safety Analysis – SR 15/US 441 Corridor (2012-2016)

Analysis Metric	Fatal and Injury	Property Damage Only	Total Crashes
Annual Observed Crashes	39.2	100.4	139.6
Annual Expected Crashes	31.3	93.0	129.2
Annual Predicted Crashes	23.9	83.0	106.2
Annual Excess Expected Crashes	**7.4**	**10.0**	**23.0**

Figure 7. Summary of EB-Method Safety Analysis – SR 15/US 441 Corridor (2012-2016)

The corridor observed an annual average of 139.6 traffic crashes during the five-year study period, including 39.2 crashes resulting in a fatality or injury to a crash-involved occupant. These values greatly exceed the calibrated predicted value of 106.2 total crashes, including 23.9 crashes resulting in a fatality or injury to a crash-involved occupant. After combining the observed and predicted frequencies using the EB method, the corridor is expected to observe approximately 129.2 traffic crashes in any given year, including 31.3 traffic crashes resulting in a fatality or injury to crash-involved occupant. This suggests a modest annual excess in traffic crashes along the study corridor with room for improvement with appropriate safety treatments. **Figures 8 and 9** show the expected, predicted, and excess expected crashes on an annual basis for each highway segment and intersection evaluated as a part of this study.

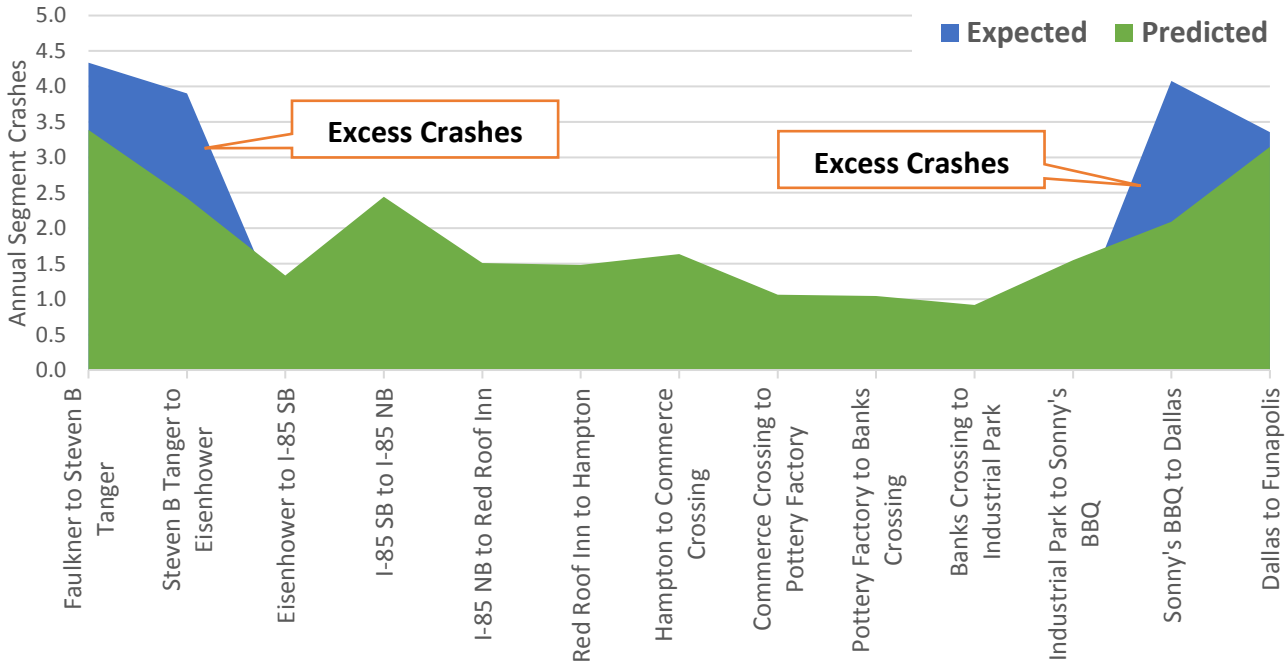


Figure 8. SR 15 /US 441 Study Corridor Highway Segments – EB-Method Results (2012-2016)

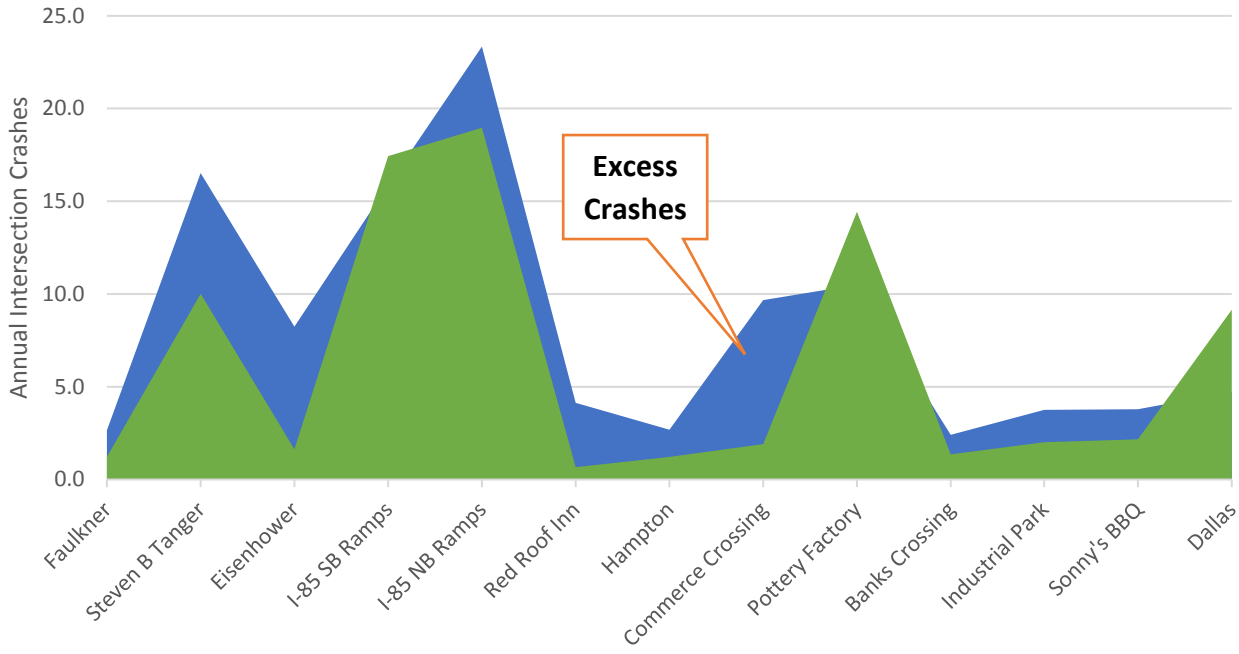


Figure 9. SR 15 /US 441 Study Corridor Intersections – EB-Method Results (2012-2016)

Similar to the traditional results, excess segment crashes are expected at the northern and southern ends of the corridor; from the Funapolis Family Fun Center to Sonny's BBQ and Eisenhower Drive to Faulkner Road. With respect to intersection-related crashes, several intersections within the study corridor are currently expected to observe at least some excess annual crashes. Excess intersection crashes are more prevalent along the northern portion of the SR 15/US 441 study corridor.

SAFETY ISSUES

To develop appropriate engineering countermeasures and recommendations for safety improvements, specific safety issues present at this location were identified based upon the analysis of historical crash data and the site visit. Background related to the typical safety risk matrix is provided in the appendix.

Safety Issue 1: High Frequency of Access Management-Related Traffic Crashes

While inclusion of the two-way LTLs provides a notable safety benefit over a traditional four-lane design given the surrounding land use, access management remains a significant concern along the study corridor. The relatively high density of commercial access combined with AADTs exceeding 20,000 daily vehicles results in a roadway environment where frequent traffic conflicts occur involving vehicles making turning movements related to the adjacent developments. This is particularly relevant for the areas north of the I-85 interchange, and along the southern edge of the corridor where commercial access density is highest as shown in **Figure 10**. It is worth noting that the stretch of highway between Faulkner Road and Eisenhower Drive maintains an approximate driveway density of more than 58 access points per mile, which has been shown in prior studies to be associated with elevated traffic crash risks. Additionally, a fatality occurred within the study corridor in 2014 resulting from a collision involving a vehicle making a left turn movement from one of the commercial driveways located north of the I-85 interchange.

Figure 10. Location of Segment Crashes – SR 15/US 441 Corridor (2012-2016)

Expected Crash Types: Head On, Angle, Sideswipe, Rear End
Expected Frequency: Frequent
Expected Severity: Moderate
Risk: D

Safety Issue 2: Signalized Intersections at I-85 Northbound and Southbound Ramps

The signalized intersections at the I-85 northbound and southbound ramps experienced 197 crashes during the five-year study period, which resulted in an annual excess of nearly three crashes when compared to predicted values from the HSM (shown in **Figure 11**). While traffic crashes were most prevalent within the intersections, a distinguished concentration of crashes is present at the midpoint between the two intersections where the exclusive LTLs to each ramp begin. Traffic conflicts occur due to vehicles attempting to enter their respective LTL from the opposing direction as the transition occurs. In addition, traffic conflicts also frequently occur related to vehicles attempting to make left-turn movements from I-85 at both intersections, where the dual exclusive LTLs result in two streams of vehicles negotiating a turn within limited roadway width.

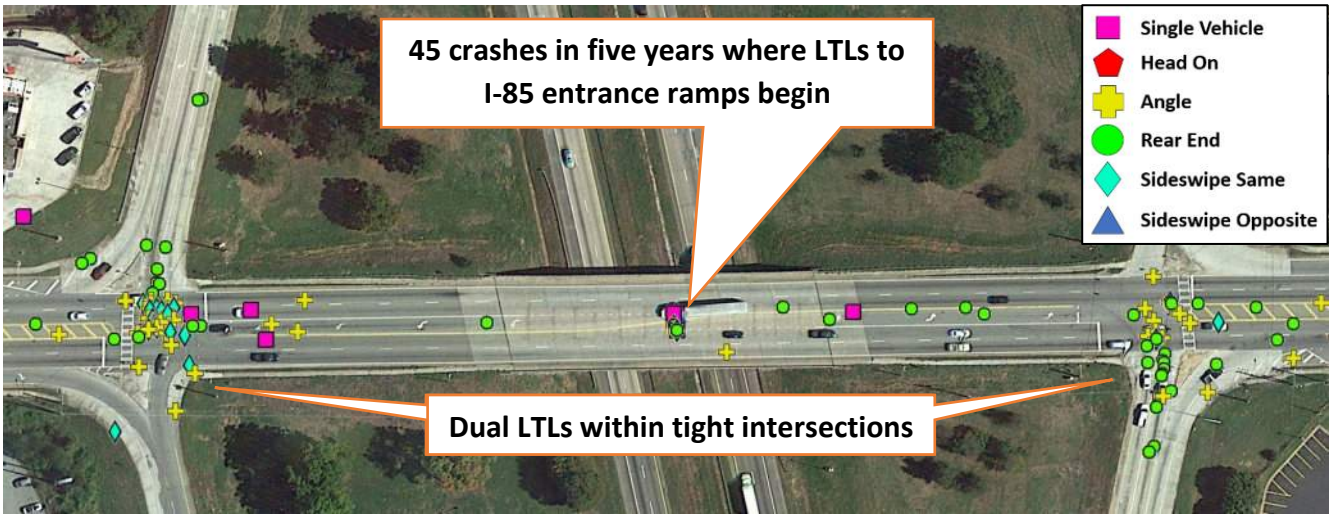


Figure 11. Traffic Crash Locations – Pottery Factory Drive/Commerce Crossing Intersection (2012-2016)

It should also be noted that the grade associated with the overpass may make it difficult for drivers to observe downstream queues related to the traffic signals in place at each ramp termini (shown in **Figure 12**).

Figure 12. Southbound View of SR 15/US 441 from I-85 SB Ramp Intersection

Expected Crash Types: Rear End, Sideswipe
Expected Frequency: Frequent
Expected Severity: Low
Risk: C

Safety Issue 3: Close Spacing of Pottery Factory Drive/Commerce Crossing Intersections

The signalized intersection with Pottery Factory Drive and the unsignalized intersection at Commerce Crossing are spaced approximately 300 feet apart, creating a roadway environment with frequent traffic conflicts between vehicles making turning movements. As a result, these intersections have experienced 105 traffic crashes during the five-year study period, contributing to an annual excess of almost four crashes (**Figure 13**).

Figure 13. Traffic Crash Locations – Pottery Factory Drive/Commerce Crossing Intersection (2012-2016)

The close proximity of these two intersections is further compounded by the relatively high amount of visual clutter present along this portion of the study corridor, as shown in **Figure 14**. This reduces the decision making ability for drivers by making it difficult to see critical traffic control devices or conflicting vehicles.

Figure 14. Southbound View of SR 15/US 441 at Commerce Crossing Intersection

Expected Crash Types: Head On, Angle, Rear End, Sideswipe
Expected Frequency: Frequent
Expected Severity: Moderate
Risk: D

Safety Issue 4: Pedestrian and Bicycle Safety

Pedestrian and bicycle safety is an important consideration along SR 15/US 441, as demonstrated by the non-motorized road user movements provided in **Table 2**. Moreover, six pedestrian crashes that occurred during the study period further highlight the non-motorized road user concerns along the study corridor. While crosswalks and pedestrian countdown signal heads are provided at each of the five signalized intersections along the study area, several aspects of the non-motorized safety features can still be improved. Many minor route legs are either missing or have severely worn crosswalk markings, are missing Americans with Disabilities Act (ADA)-complaint ramps, or otherwise represent a difficult crossing environment (shown in **Figure 15**). There is also a significant distance between crossings from the I-85 interchange to Pottery Factory Drive, which stretches approximately 0.25 miles. This concern is highlighted by the three pedestrian crashes that occurred in this area during the five-year study period. Finally, it should be noted that there are no bicycle-specific facilities present within the corridor.

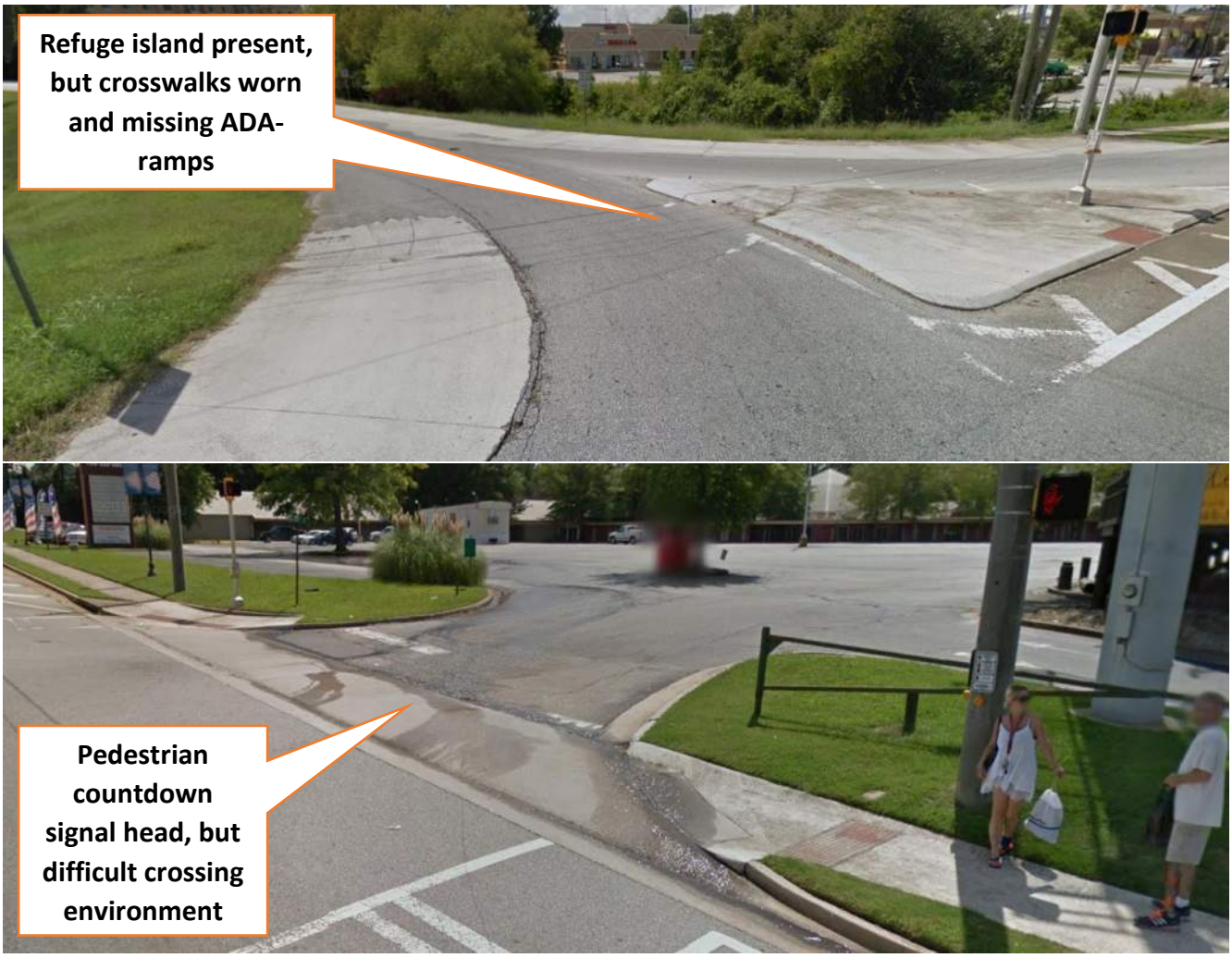


Figure 15. Southern Leg of SB I-85 (A) and Pottery Factory Drive (B) Intersections – Missing Pedestrian Facilities

Expected Crash Types: Pedestrian, Bicycle
Expected Frequency: Rare
Expected Severity: Extreme
Risk: C

Safety Issue 5: Eastbound Approach at Steven B. Tanger Boulevard Signalized Intersection

The signalized intersection at Steven B. Tanger Boulevard experienced 85 crashes during the five-year study period, including 18 FI crashes. The results of the EB-method analysis suggest that this intersection experiences an annual excess of more than six crashes compared to similar intersections used to develop the models in the HSM. Specifically, 29 crashes (or 34 percent of all crashes) involved at least one vehicle originating from the minor eastbound Steven B. Tanger Boulevard approach, despite the fact that this approach contributes only 17 percent of daily entering traffic the intersection. Drivers approaching the intersection eastbound must first negotiate a curve ending approximately 250 feet upstream of the intersection, and determine the appropriate lane choice between the exclusive left and right turn lanes (**Figure 16**). Also note, that a W3-3 traffic signal ahead sign is provided upstream of the curve to provide warning to drivers of the downstream traffic signal. The concentration of rear end crashes occurring within the intersection involving vehicles making a left turn movement from the minor approach (**Figure 16**) is reflective of drivers' difficulty navigating this approach.

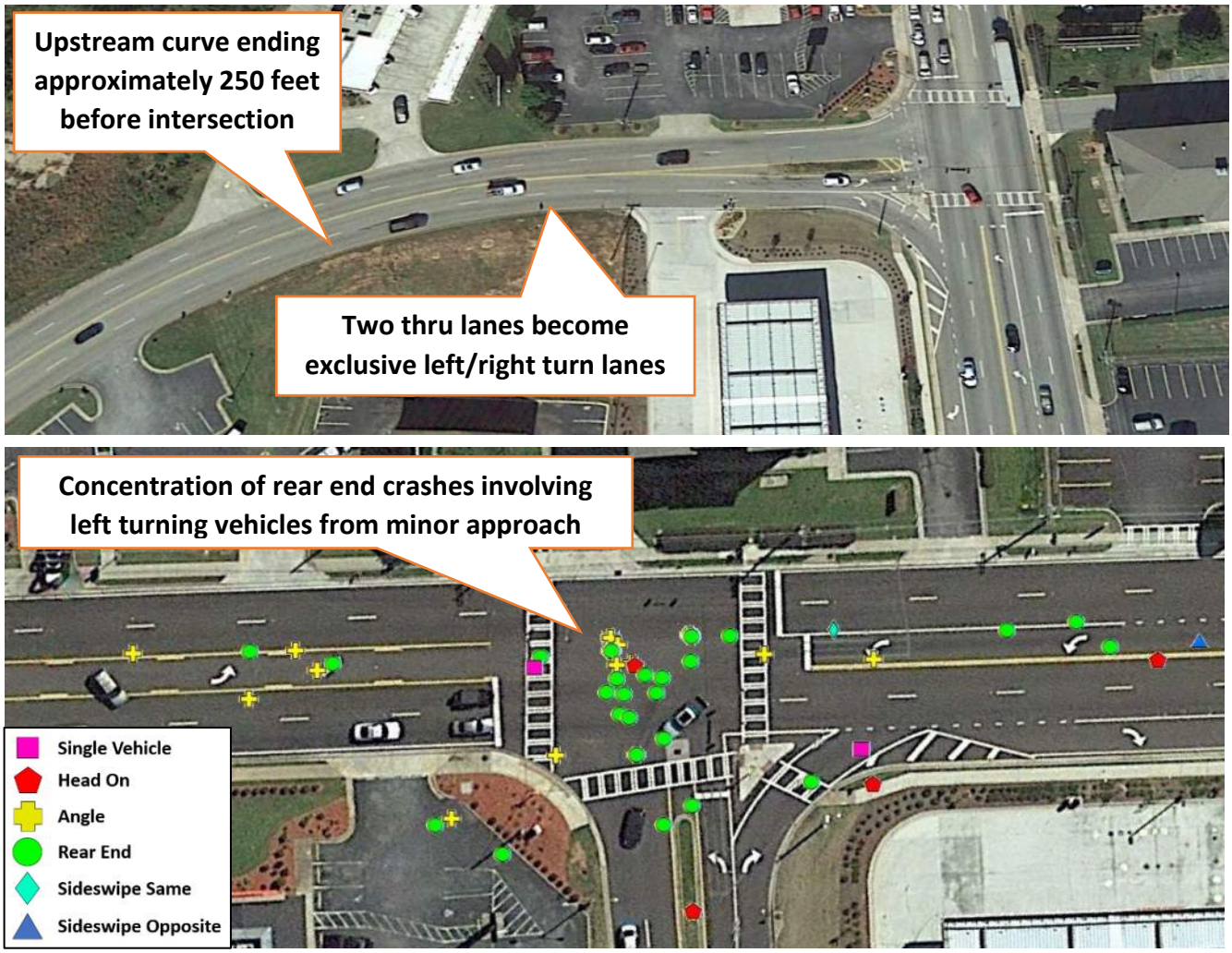


Figure 16. Satellite Views of Steven B. Tanger and SR-15/US-441 Intersection

Expected Crash Types: Angle, Rear End, Sideswipe
Expected Frequency: Occasional
Expected Severity: Low
Risk: B

OPERATIONAL ANALYSIS

Capacity Analysis

Background for a planning-level capacity analysis procedure is provided in the attachments. The acceptable annual average daily traffic (AADT) for a two-lane road using this methodology is 13,300 vehicles per day (VPD) while for a four-lane it is 31,300 VPD. SR-15/US-441 includes four through lanes with an AADT of approximately 27,700 VPD south of Hampton Court according to the counts collected by the Atkins team in January 2017. These volumes are less than the computed acceptable daily volumes for four-lane roadways; therefore, available capacity does not appear to be an issue given the current cross-section.

Delay

An existing capacity analysis for the project corridor was conducted using the traffic operations software Synchro, version 9 and the *2010 Highway Capacity Manual*. AM and PM peak hour periods were estimated from the 12-hour turning movement counts collected by the Atkins team, and details for each intersection can be found in the appendix to this report. It should be noted that for the purposes of this analysis, it was assumed that a level of service (LOS) D or better will be considered adequate (or acceptable). LOS worse than D would indicate that an intersection or approach is nearing unacceptable levels of operation and would be unable to accommodate substantial increases in traffic without significant increases in congestion and delay. **Table 7** summarizes results from the Synchro model.

Table 7. Existing Delay along SR-15/US-441 Corridor – Synchro Model Results

Intersection	Peak Period	Overall (Delay/LOS)	V/C Ratio	EB		WB		NB		SB		ICU (%/LOS)
				Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	
SR 15/US 441 @ the Funapolis Fun Center	AM	0.0/A	0.30	0.0	-	0.0	-	0.0	-	0.0	-	23/A
	PM	0.2/A	0.42	0.0	-	14.8	B	0.0	-	0.2	A	38/A
SR 15/US 441 @ Dallas Dr/Walmart Drive	AM	3.9/A	0.25	0.0	-	11.1	B	3.4	A	3.6	A	29/A
	PM	8.1/A	0.49	4.5	A	13.3	B	6.8	A	8.2	A	49/A
SR 15/US 441 @ Sonny's BBQ/Walmart Drive	AM	0.8/A	0.20			10.9	B	0.0	-	1.0	A	35/A
	PM	2.3/A	0.31			11.7	B	0.0	-	1.9	A	46/A
SR 15/US 441 @ Industrial Park Dr	AM	0.9/A	0.27	0.0	-	11.9	B	0.0	-	0.6	A	36/A
	PM	1.1/A	0.43	0.0	-	15.8	C	0.0	-	0.8	A	48/A
SR 15/US 441 @ Banks Crossing Dr	AM	0.2/A	0.23	9.9	A	22.4	C	0.2	A	0.0	-	31/A
	PM	0.3/A	0.34	10.6	B	16.4	C	0.1	A	0.0	-	45/A
SR 15/US 441 @ Pottery Rd/QT Drive	AM	4.9/A	0.53	0.0	-	27.2	C	3.7	A	2.0	A	37/A
	PM	10.6/B	0.64	38.8	D	31.9	C	8.3	A	6.0	A	51/A
SR 15/US 441 @ Commerce Crossing Drive	AM	0.2/A	0.23	11.9	B			0.2	A	0.0	-	30/A
	PM	1.0/A	0.33	16.4	C			0.4	A	0.0	-	47/A
SR 15/US 441 @ Hampton Ct/Truck Stop	AM	0.5/A	0.23	21.7	C	11.8	B	0.0	-	0.1	A	30/A
	PM	0.7/A	0.34	38.5	E	17.5	C	0.0	-	0.2	A	39/A
SR 15/US 441 @ Red Roof Inn/Truck Stop	AM	0.1/A	0.23	0.0	-	10.4	B	0.1	A	0.0	-	30/A
	PM	0.1/A	0.34	0.0	-	15.5	B	0.0	-	0.0	-	40/A
SR 15/US 441 @ I-85 NB Ramps	AM	7.0/A	0.49	33.5	C			3.5	A	2.1	A	40/A
	PM	12.1/B	0.79	42.0	D			6.6	A	3.7	A	46/A
SR 15/US 441 @ I-85 SB Ramps	AM	6.1/A	0.48			38.3	D	1.7	A	3.4	A	40/A
	PM	6.3/A	0.51			39.4	D	2.8	A	2.4	A	46/A
SR 15/US 441 @ Eisenhower Dr	AM	0.9/A	0.23	11.4	B	14.1	B	0.5	A	0.1	A	36/A
	PM	1.3/A	0.31	11.7	B	18.3	C	0.8	A	0.2	A	48/A
SR 15/US 441 @ Steven B. Tanger Blvd	AM	6.2/A	0.49	38.2	D	0.0	-	1.2	A	5.4	A	51/A
	PM	10.4/B	0.64	27.1	C	0.0	-	5.0	A	9.4	A	59/B
SR 15/US 441 @ Faulkner Rd	AM	1.7/A	0.23	13.0	B			0.8	A	0.0	-	34/A
	PM	1.6/A	0.18	12.4	B			1.3	A	0.0	-	35/A

Analysis of the existing operational conditions suggest that the majority of movements along the corridor are performing at LOS D or better. However; it is worth noting that the eastbound approach at Hampton Court is currently performing at a LOS E given the existing conditions. This failing approach should be considered when developing potential alternatives to improve safety and mobility within the project corridor.

ALTERNATIVE AND COUNTERMEASURE EVALUATION

Given the traffic and safety data outlined in the preceding sections, the Atkins team identified several potential design alternatives and countermeasures to improve both safety and operations at the study corridor. These potential design alternatives and countermeasures were ultimately evaluated for further implementation.

Potential Safety Alternatives and Countermeasures

Table 8 summarizes the selected safety countermeasures and their associated crash modification factor (CMF) identified from the HSM or Federal Highway Administration's *CMF Clearinghouse.* Also, while many safety countermeasures are suggested, only those with applicable CMFs (or otherwise quantifiable impacts) are analyzed.

Table 8: Suggested Safety Countermeasures and CMFs for SR-15/US-441 Corridor

No.	Countermeasure	CMF (FI Crashes)	CMF (PDO Crashes)	Safety Issue Addressed
1A	Install raised concrete median (all segments)	0.67	0.53	1, 2, 3, 4
1B	Install raised concrete median (certain intersections)	0.54	0.65	1, 2, 3, 4
2	Restripe faded crosswalks, install missing crosswalks, provide missing ADA-compliant ramps	N/A	N/A	4
3	Add pedestrian-focused lighting where missing	N/A	N/A	4
4	Install supplemental signal heads on near right and far left at signalized intersections	0.83	0.69	2, 3, 5
5	Install reflective backplates at signalized intersections	0.85	0.85	2, 3, 5
6	Close driveways in functional area of specific intersections	0.93	0.93	1, 2, 5

The installation of a raised concrete median would provide tangible safety benefits to all roadway segments within the corridor, along with all intersections that no longer provide a direct left turn movement. This treatment would specifically address the safety issues related to the relatively high commercial access point density, as well as providing a refuge island for non-motorized users attempting to cross SR 15/US 441.

The treatments related to pedestrian facilities noted in countermeasures #2 and #3 would provide critical improvements to both the safety and connectivity of non-motorized users. However, these treatments will likely not have a significant impact on traffic crashes due to the rare and random nature of crashes involving non-motorized road users. Therefore, the impact of such treatments cannot easily be quantified despite their noted benefit to road users.

Suggested countermeasures #4 and #5 help to improve the conspicuity of the traffic signals along the corridor, which in part address safety issues #2, #3, and #5. Given the amount of visual clutter present within the study area, improving the conspicuity of traffic signals can help improve compliance with the intended message of these devices, leading to potentially increased safety performance.

Finally, closing driveways within the functional area of the intersections from Hampton Court to the northern edge of the study corridor would also help to address safety issues #1, #2, and #5. Specifically, consolidating driveways within the functional area of intersections north of the I-85 interchange where retail development is the densest would provide notable safety benefits, with or without installation of a raised median.

Adjacent Projects and Conceptual Design

Safety countermeasures evaluated as a part of this study were considered consistent with an adjacent project as well as a prior conceptual design to implement a raised median along the corridor. The adjacent project includes realignment of Faulkner Road and Steven B. Tanger Boulevard to incorporate a new development which will access SR 15/US 441 via a driveway located at Faulkner Road. Steven B. Tanger Boulevard will be converted to an unsignalized right-in right-out intersection consistent with other unsignalized intersections along the corridor. The new design is intended to shift traffic to the intersection at Faulkner Road, which will now be signalized to facilitate the increased traffic volume. A conceptual drawing related to this realignment project is included in **Appendix M**. The location of intersections which will have a closed median (or right-in right-out access only) and those which will have an open median (direct left-turn movements allowed with signalization) in the proposed design are shown in **Figure 17.**

Figure 17. Satellite Views of Steven B. Tanger and SR-15/US-441 Intersection

Safety Impact of Potential Alternatives and Countermeasures

While the suggested countermeasures are proven safety treatments that have been shown in prior research to reduce traffic crashes, not all treatments may be feasible or cost-effective at this location based upon further study. Therefore, it is important to consider several combinations of the evaluated treatments that may be selected for implementation. **Table 9** summarizes the estimated impacts on expected annual crash frequencies for various safety treatment combinations. It should be noted that due to the proposed modifications to the intersections at Faulkner Road and Steven B. Tanger Boulevard, the impact of the proposed raised median was evaluated by estimating predicted crash frequencies using the models from the HSM specific to the new site conditions and expected traffic volumes. These frequencies were calibrated using data specific to GDOT Districts 1, 2 and 5. These frequencies were applied to the no build condition for the purposes of estimating the impact of treatments identified within this study. Additionally, treatments which are expected to reduce crashes below the predicted frequencies with treatment were limited to the predicted frequencies unless geometric modifications were applied.

Table 9: Annual Safety Impact of Proposed Safety Countermeasures

Safety Countermeasure Combination	Expected Crashes w/o Treatment		Expected Crashes With Treatment		Annual Reduction in Traffic Crashes		Percent Reduction	
	FI	PDO	FI	PDO	FI	PDO	FI	PDO
Installation of Raised Concrete Median	31.4	90.4	26.4	74.8	5.0	15.6	15.9%	17.2%
Installation of Supplemental Signal Heads	31.4	90.4	29.9	84.9	1.6	5.5	5.0%	6.1%
Installation of Reflective Backplates on Signal Heads	31.4	90.4	30.1	86.4	1.4	4.0	4.4%	4.4%
Closing Driveways Adjacent to Specific Intersections	31.4	90.4	30.8	88.4	0.6	1.9	1.9%	2.1%
All Treatments	**31.4**	**90.4**	**23.8**	**67.9**	**7.7**	**22.5**	**24.4%**	**24.9%**

The installation of a raised concrete median is expected to result in an annual reduction of 5.0 FI crashes and 15.6 PDO crashes, representing a 15.9 and 17.2 percent decrease in expected annual crashes, respectively. Further, the installation of the raised median would directly address traffic conflicts which resulted in two of the three fatalities that occurred during the five-year study period. Improvements to the five traffic signals, including installation of supplementary signal heads and retroreflective backplates, are also expected to produce modest reductions in both FI and PDO crash frequency. Consolidating driveways within the functional area of intersections north of Hampton Court is expected to result in annual reductions of 0.6 FI crashes and 1.9 PDO crashes.

Finally, implementation of all of the suggested countermeasures is expected to reduce approximately 7.7 FI crashes and 22.5 PDO crashes annually. This represents a 24.4 percent and 24.9 percent reduction in FI crashes and PDO crashes, respectively. It is worth noting that the 23.8 FI crashes and 67.9 PDO crashes expected with treatment is much closer to the 20.0 FI crashes and 66.4 PDO crashes predicted by the models provided in the HSM. The expected annual crash outcomes of various implementation scenarios, including without treatment as well as the values predicted by the HSM models, are presented in **Figure 18.**

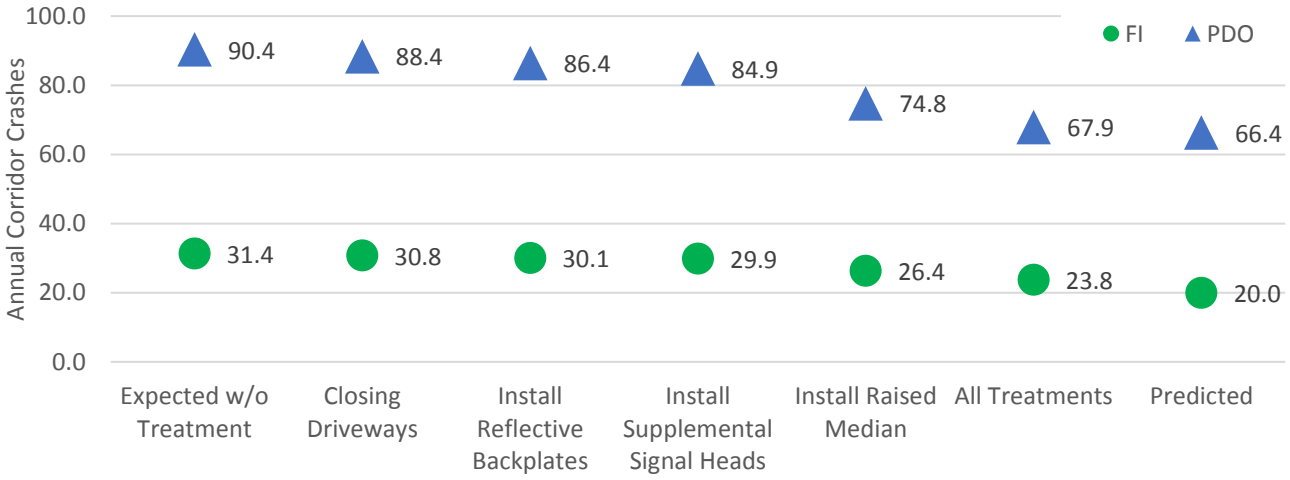


Figure 18. Safety Impact of Various Treatment Scenarios, SR-15/US-441 Study Corridor

Operational Impact of Potential Alternatives and Countermeasures

Despite the noted potential crash reductions, design alternatives that impact traffic operations should be further evaluated to ensure unreasonable delays will not be incurred. Specifically, the impact of implementing the raised concrete median was modeled in Synchro and compared to the no-build condition, including both the AM and PM peak periods. Several traffic scenarios, including estimated 2023 volumes and estimated 2043 volumes were also evaluated based upon a 0.5 percent growth rate developed using local data and project generated trips for the planned non-residential development in the northern portion of the corridor. The complete results of the operational analysis for each scenario are provided in the appendix to this report, including delay, LOS, and intersection capacity utilization.

Analysis of the estimated year 2023 no-build condition (shown in **Table 10**) suggests that the intersections at Faulkner Road, Eisenhower Drive, and Hampton Court will experience delays resulting in LOS E or worse, indicating less than acceptable operational performance with the no-build condition.

Table 10. Year 2023 No-Build Operational Analysis Results – Intersections with LOS E or Worse

Intersection	Peak Period	Overall (Delay/LOS)	V/C Ratio	Eastbound		Westbound		Northbound		Southbound		ICU (%/LOS)
				Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	
US441/SR 15 @ Faulkner Rd	AM	10.2/B	0.60	37.5	D	56.9	E	3.0	A	7.6	A	45/A
	PM	26.1/C	0.84	18.9	B	22.3	C	28.7	C	26.7	C	65/C
US 441/SR 15 @ Eisenhower Dr	AM	4.4/A	0.62	73.4	F	31.3	D	9.3	A	16.2	C	57/B
	PM	122.4/F	2.79	15.3	C	860.1	F	12.2	B	12.5	B	83/E
US 441/SR 15 @ Hampton Ct	AM	0.6/A	0.41	26.6	D	14.2	B	0.0	A	12.0	B	47/A
	PM	1.1/A	0.51	100.7	F	14.4	B	0.0	A	11.5	B	54/A

While the PM peak eastbound LOS F at Hampton Court is consistent with the existing condition, the less than acceptable movements at Faulkner Road and Eisenhower Drive represent a marked decrease in performance. Improving the LOS at these locations would require either signalization or geometric modifications to accommodate the estimated 2023 volumes. Further analysis of the build condition (implementation of the raised concrete median) suggests that delay at the Faulkner Road, Eisenhower Drive, and Hampton Court intersections would be improved to acceptable conditions under the 2023 traffic volume estimates. However, this would result in the Dallas Drive intersection performing at less than acceptable LOS, shown in **Table 11**.

Table 11. Year 2023 Build Operational Analysis Results – Intersections with LOS E or Worse

Intersection	Peak Period	Overall (Delay/LOS)	V/C Ratio	Eastbound		Westbound		Northbound		Southbound		ICU (%/LOS)
				Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	
US441/SR 15 @ Faulkner Rd	AM	20.1/C	0.80	30.9	C	43.1	D	15.6	B	15.8	B	59/B
	PM	111.4/F	1.41	81.7	F	170.4	F	116.2	F	40.5	D	113/H
US 441/SR 15 @ Dallas Dr	AM	4.4/A	0.42	35.8	D	24.3	C	2.5	A	3.3	A	59/B
	PM	27.9/C	1.22	23.2	C	60.6	E	4.0	A	39.8	D	76/D

Investigation by the Atkins team found that with the implementation of northbound and westbound dual left-turn lanes and signal phasing adjustments at Faulkner Road, unacceptable delays at the signalized intersection would be mitigated during the PM peak period. For this modified concept, the signal phasing was adjusted from the baseline concept configuration by adding split phasing for east and west bound Faulkner Road and adding a protected only northbound SR 15 phase. Additionally, implementation of a southbound dual left turn

movement with a protected phase at Dallas Drive would address the less than acceptable delays incurred during the PM peak period. This scenario was modeled in Synchro using the estimated 2023 AM and PM peak periods and found no intersections experiencing unacceptable LOS.

The no-build and build conditions were also modeled in Synchro based upon estimated 2043 traffic volumes. These results were in general agreement with the results of the scenarios modeled using the estimated 2023 traffic volumes, and full details can be found in the appendix of this report. Ultimately, the implementation of the raised concrete median is feasible from an operational standpoint given the noted modifications at the Faulkner Road and Dallas Drive intersections.

CONCLUSION

The previous sections of this report demonstrate that the proposed alternatives and countermeasures will operate at an acceptable level of delay, and have been proven in prior research to improve traffic safety. Therefore, GDOT should consider the recommended safety countermeasures and treatments presented in **Table 12** for implementation.

Table 12: Suggested Safety Countermeasures for SR 15/US 441 Corridor

No.	Countermeasure	Approximate Implementation Timeline	Safety Issue Addressed
1A	Install raised concrete median (all segments)	Long	1, 2, 3, 4
1B	Install raised concrete median (certain intersections)	Long	1, 2, 3, 4
2	Restripe faded crosswalks, install missing crosswalks, provide missing ADA-compliant ramps	Short	4
3	Add pedestrian-focused lighting where missing	Long	4
4	Install supplemental signal heads on near right and far left at signalized intersections	Short	2, 3, 5
5	Install reflective backplates at signalized intersections	Short	2, 3, 5
6	Close driveways in functional area of specific intersections	Long	1, 2, 5

Additional Considerations

While this report includes the preliminary evaluation of the seven countermeasures recommended in **Table 12**, there may be additional design alternatives and treatments that may improve safety and mobility within the study corridor. One such design alternative is the conversion of the traditional ramp terminals at the I-85 interchange to a diverging diamond interchange (DDI), which would directly address safety issue #2. While implementing such a design would require significant additional study to ensure feasibility, the expected safety impact based upon the CMFs included in the *CMF Clearinghouse* developed using data from similar conversions suggests a decrease in expected crashes at the ramp terminals from 10.1 FI crashes and 29.0 PDO crashes annually to approximately 6.0 FI crashes and 19.4 PDO crashes annually. Given the promising annual benefits associated with this design, operational analyses (including the development of micro-simulation models) and other feasibility studies should be performed to determine if a diverging diamond may be suitable for this location.

RECOMMENDATIONS

Based on the information presented in this report, the Atkins team recommends both short and long-term safety improvements along the SR 15/US 441 corridor. The short-term improvements include refreshing and installing pedestrian crosswalk striping, providing ADA-compliant ramps, and installing supplemental signal heads and reflective backplates at the signalized intersections. The long-term improvements include installing a raised concrete median, adding pedestrian lighting, closing driveways, and upgrading the existing interchange to a DDI. Since the raised median addresses most of the safety issues of the corridor, we recommend that the Department move forward with the installation of the raised concrete median in addition to implementing the short-term recommendations. Additionally, further investigation of converting the I-85 ramp terminals to a diverging diamond interchange design should also be performed to determine its feasibility.

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APPENDICES

Appendix A: Planning Level Capacity Analysis

Appendix B: Design Traffic Factors

Appendix C: Safety Risk Matrix

Appendix D: Peak-Hour Turning Movement Counts

Appendix E: Synchro Analysis Results – 2017 Existing No-Build Condition

Appendix F: Synchro Analysis Results – 2023 No-Build Condition

Appendix G: Synchro Analysis Results – 2023 Build Condition (Raised Concrete Median)

Appendix H: Synchro Analysis Results – 2023 Build Condition (Improved-Raised Concrete Median)

Appendix I: Synchro Analysis Results – 2043 No-Build Condition

Appendix J: Synchro Analysis Results – 2043 Build Condition (Improved-Raised Concrete Median)

Appendix K: Collision Diagrams

Appendix L: Crash Maps

Appendix M: Conceptual Drawing of Faulkner Road Realignment

Appendix A: Planning Level Capacity Analysis:

GDOT's design policy manual states that the ideal capacity of a two lane roadway is 1,700 vehicles per hour (vph) in each direction and 2,000 vph per lane for a multi-lane highway. The manual also states that two lane roadways are generally acceptable only if the design hour volume (DHV) is less than 800 vph in either direction. For the purposes of a "planning level capacity analysis," for two lane roadways, the acceptable DHV of 800 needs to be converted to an acceptable daily volume and compared with GDOT's average AADT counts to determine potential capacity issues. As the 800 vph is in either direction, it represents the directional design hour volume (DDHV). The calculation for DDHV using AADT is as follows:

DDHV = AADT * K * D where:
K = proportion of the AADT that occurs during the design hour
D = proportion of the DHV that occurs in the heavier direction of travel

Since the DDHV is known (800 vph), assuming a K and D value allows for the calculation of a target daily volume or AADT in the above formula. Reasonable assumptions for K and D were made where K was assumed to be 0.10 (or 10%) and D was assumed to be 0.60 (or 60%). Using those in conjunction with GDOT's acceptable DDHV, the acceptable daily volume for a two lane road is computed as follows:

Two lane acceptable daily volume = 800 / (0.10 * 0.60) = 13,333 (13,300 rounded).

For multilane roadways, a ratio was computed of the acceptable DHV (800) for a two lane roadway divided by the ideal capacity (1,700) of a two lane roadway to allow for the computation of an acceptable DHV for a multilane roadway (ratio = 800 / 1700 = 0.47). Using this ratio along with the ideal hourly capacity for a multilane roadway (2,000 vehicles per lane), the acceptable directional DHV for a multilane roadway is as follows:

Acceptable multilane DDHV = 2,000 * 0.47 * # lanes / 2
Four lane roadway DDHV = 2,000 * 0.47 * 4 / 2 = 1,880 vph

To compute the multilane acceptable daily volume, the same formula is applied to the DDHV from the two lane:

Four lane acceptable daily volume = 1,880 / (0.10 * 0.60) = 31,333 (31,300 rounded)

Appendix B: Design Traffic Factors

Location	Banks County								TRUCK % (Peak)			TRUCK % (24 hr)		
	Peak Hour	NE-VOL	SW-VOL	T NE-VOL	T SW-VOL	K	D	AADT	S.U.	COMB	TOTAL	S.U.	COMB	TOTAL
US 441/SR 15, N/O Faulkner Rd	7:15 AM	480	550	6,400	6,387	**0.07**	**0.53**	14,500	**6.1%**	**3.9%**	**10.0%**	**6.7%**	**3.7%**	**10.4%**
US 441/SR 15, N/O Faulkner Rd	5:00 PM	610	503			**0.08**	**0.55**		**3.9%**	**2.6%**	**6.5%**			
US 441/SR 15, S/O Hampton Court	7:15 AM	689	663	12,663	11,822	**0.05**	**0.51**	27,700	**6.1%**	**3.9%**	**10.0%**	**6.9%**	**4.8%**	**11.7%**
US 441/SR 15, S/O Hampton Court	5:00 PM	1,019	934			**0.07**	**0.52**		**5.6%**	**3.6%**	**9.1%**			
US 441/SR 15, N/O Steve Reynolds Industrial Pkwy	7:15 AM	670	563	11,761	10,780	**0.05**	**0.54**	25,500	**8.2%**	**4.0%**	**12.1%**	**6.5%**	**4.7%**	**11.2%**
US 441/SR 15, N/O Steve Reynolds Industrial Pkwy	5:00 PM	984	862			**0.07**	**0.53**		**5.5%**	**3.1%**	**8.6%**			

Appendix C: Safety Risk Matrix

Crash Frequency

Estimated		Expected Crash Frequency (from HSM analysis)	Frequency Rating
Exposure	**Probability**		
High	High	10 or more crashes per year	Frequent
Medium	High		
High	Medium	1 to 9 crashes per year	Occasional
Medium	Medium		
High	Low	Less than 1 crash per year, but more than 1 crash every five years	Infrequent
Low	Medium		
Medium	Low	Less than 1 crash every five years	Rare
Low	Low		

Crash Severity

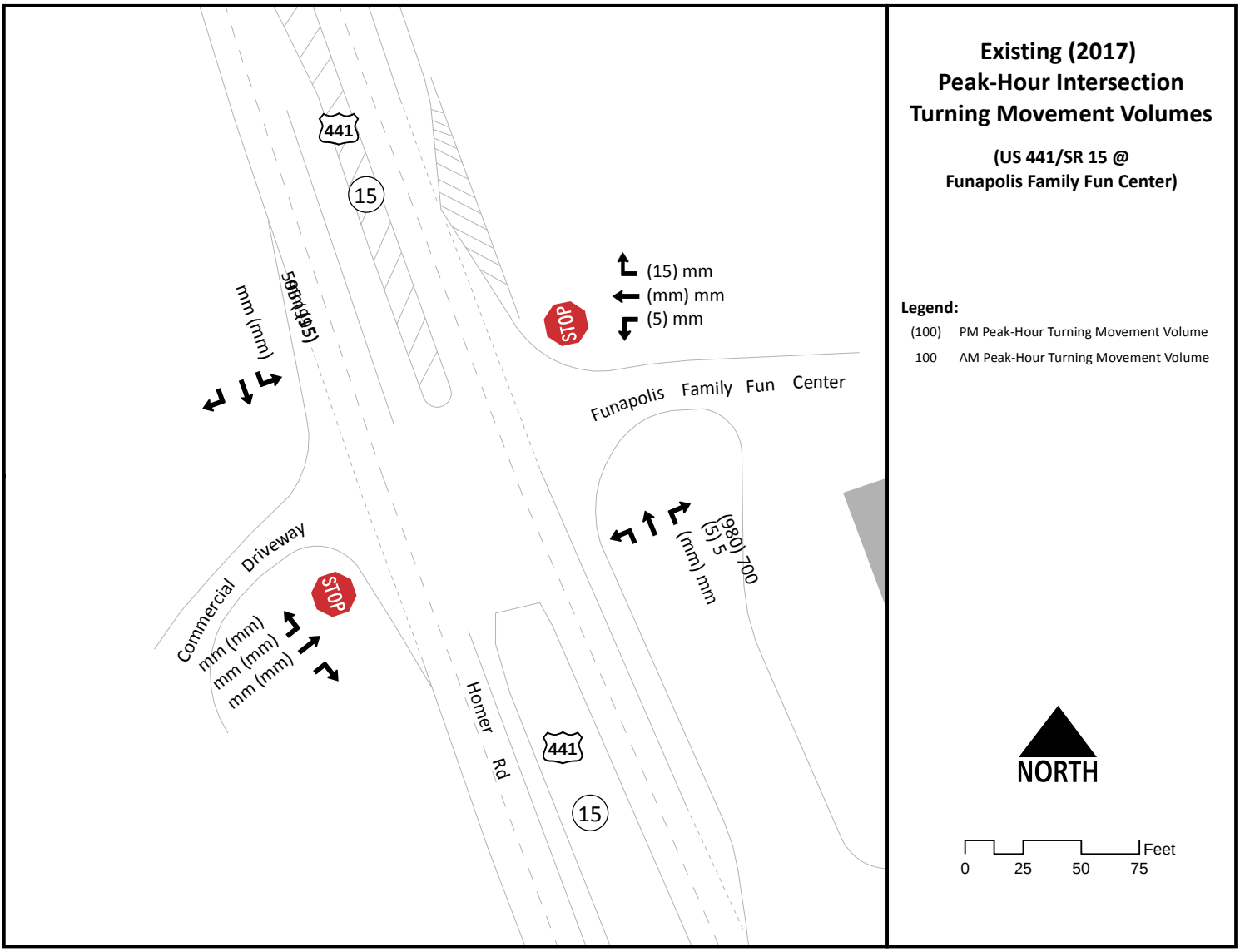
Types of crashes	Expected crash severity	Severity rating
Crashes involving high speeds or heavy vehicles, pedestrians, bicycles or motorcycles	Probable fatality or incapacitating injury	Extreme
Crashes involving medium to high speeds; lane departure, angle, or left-turn crashes	Moderate to severe injury	High
Crashes involving low to medium speeds angle or left-turn crashes or high speeds and rear end or side-swipe crashes	Minor to moderate injury	Moderate
Crashes involving low to medium speeds; rear end or sideswipe crashes	Property damage only or minor injury	Low

Safety Risk Matrix

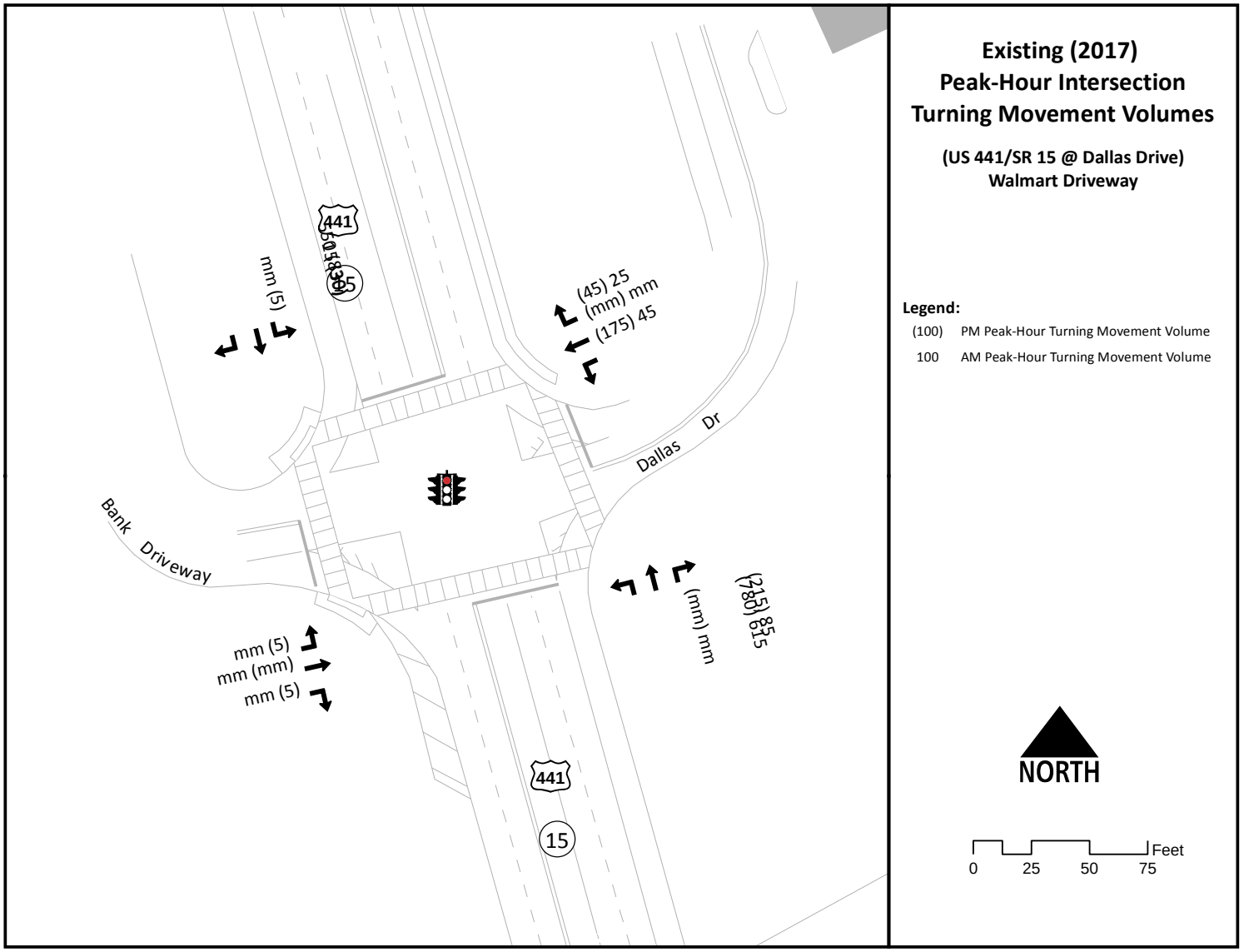
Frequency Rating	Severity Rating			
	Low	Moderate	High	Extreme
Frequent	C	D	E	F
Occasional	B	C	D	E
Infrequent	A	B	C	D
Rare	A	A	B	C

Appendix D: Peak-Hour Turning Movement Counts

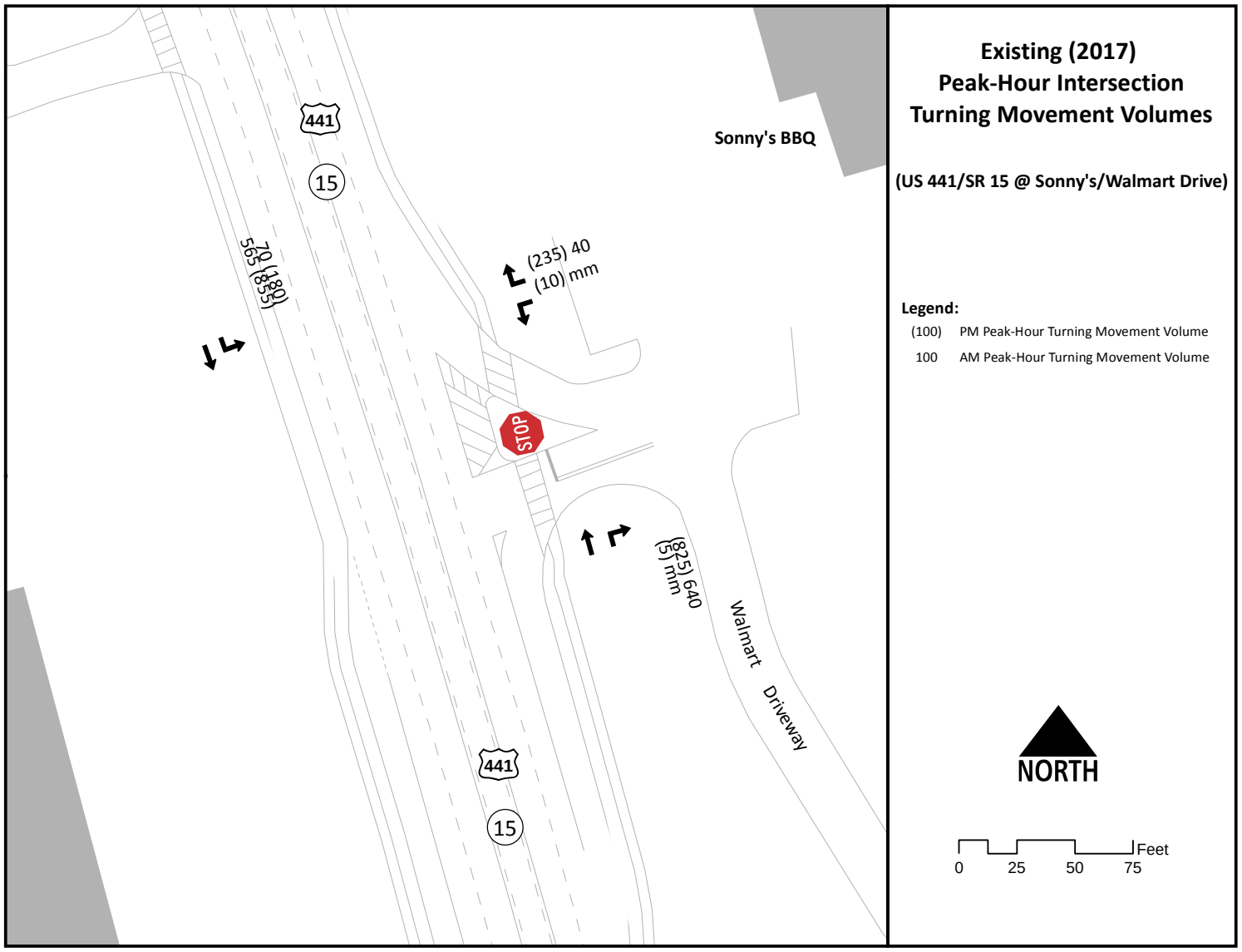
Peak-Hour Turning Movement Counts – Funapolis Family Fun Center



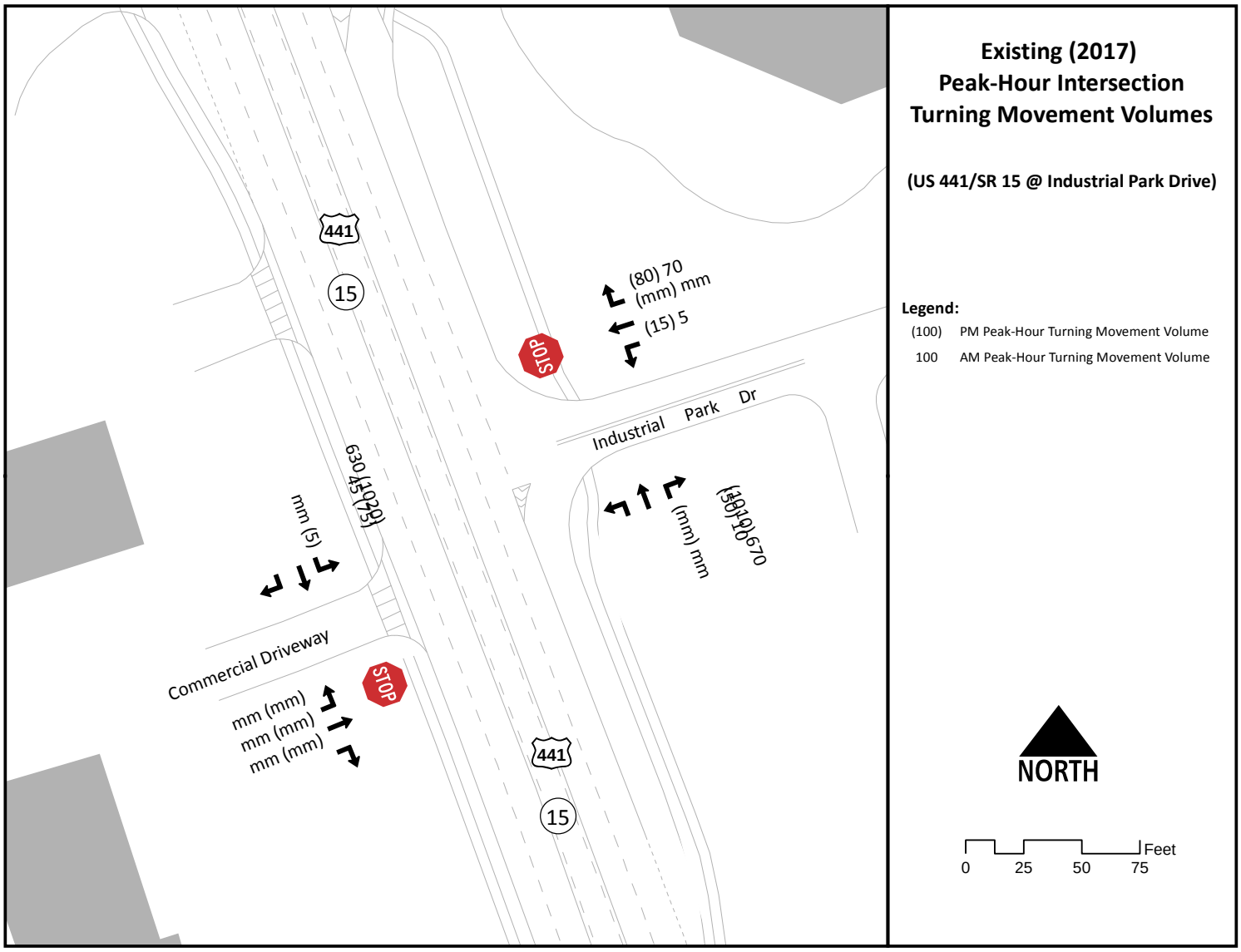
Peak-Hour Turning Movement Counts – Dallas Drive/Walmart Supercenter



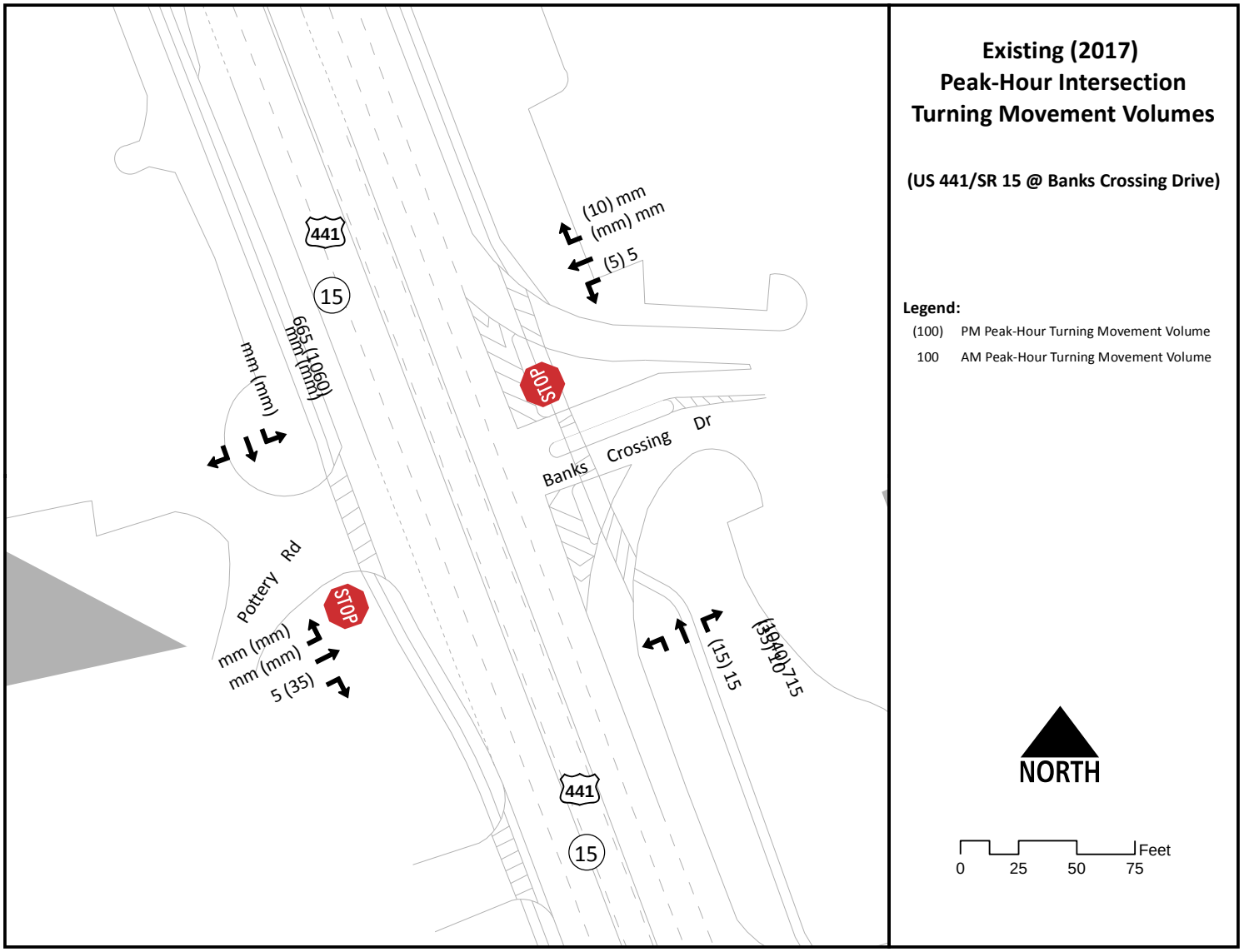
Peak-Hour Turning Movement Counts – Sonny's BBQ/Walmart Supercenter



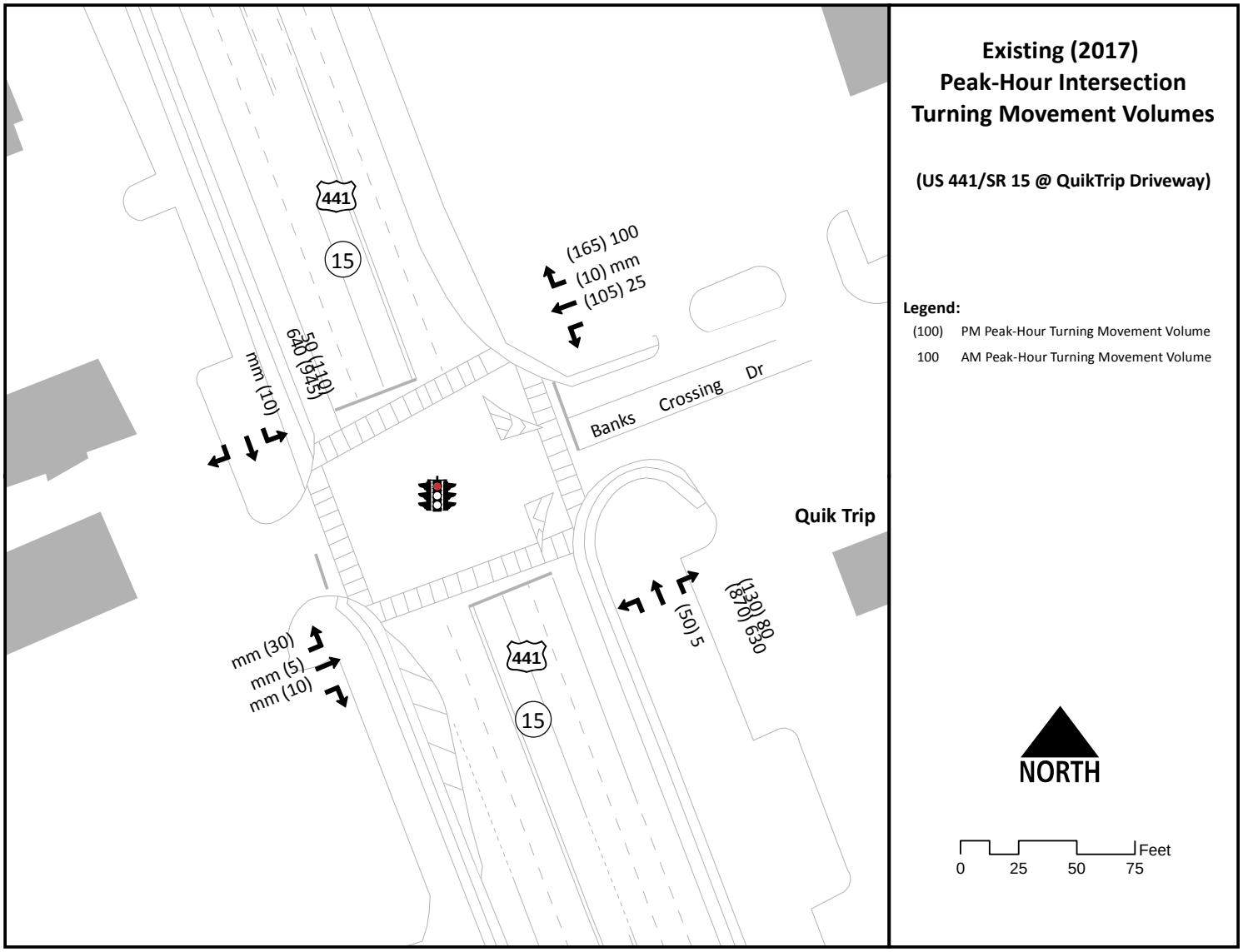
Peak-Hour Turning Movement Counts – Industrial Park Drive



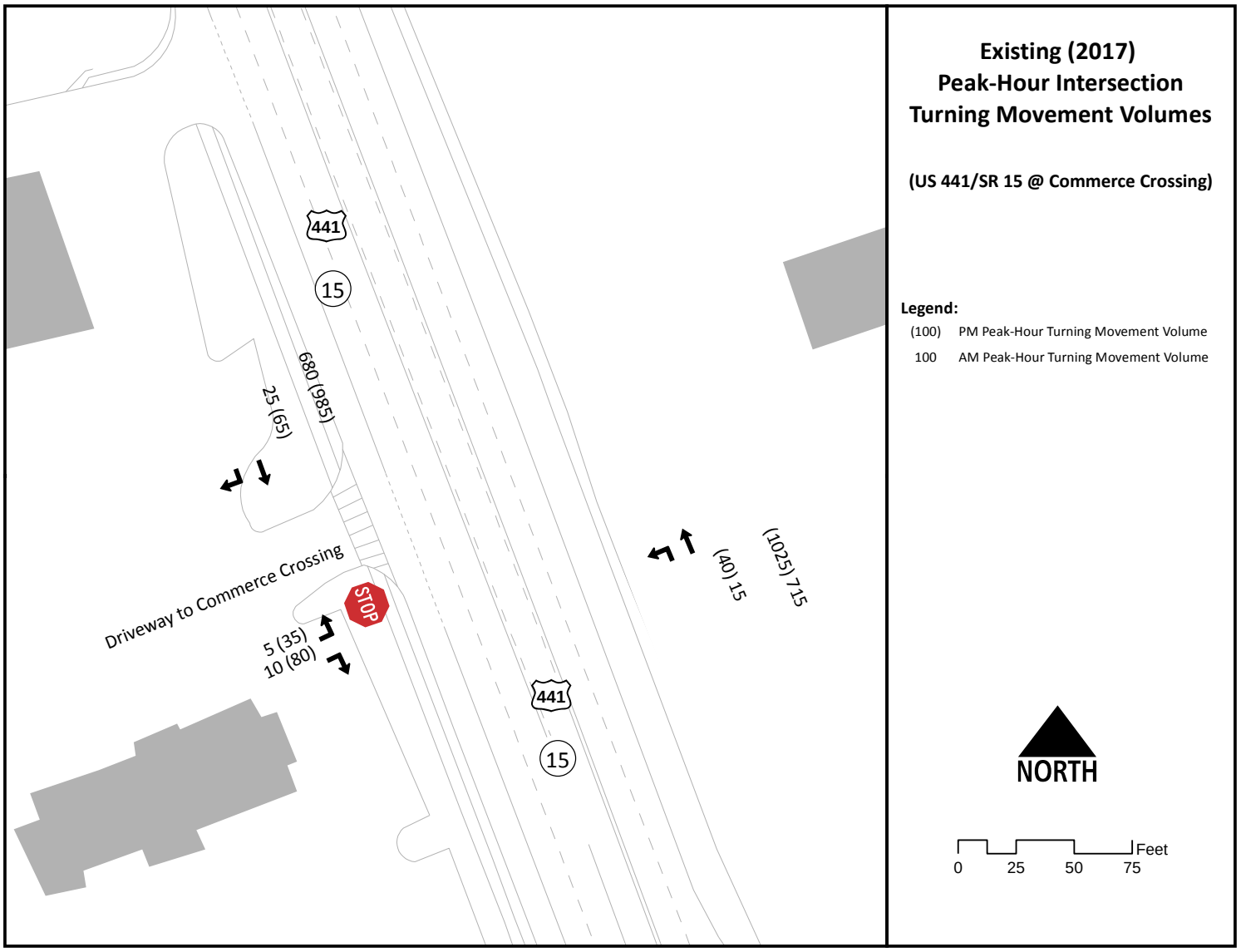
Peak-Hour Turning Movement Counts – Banks Crossing Drive



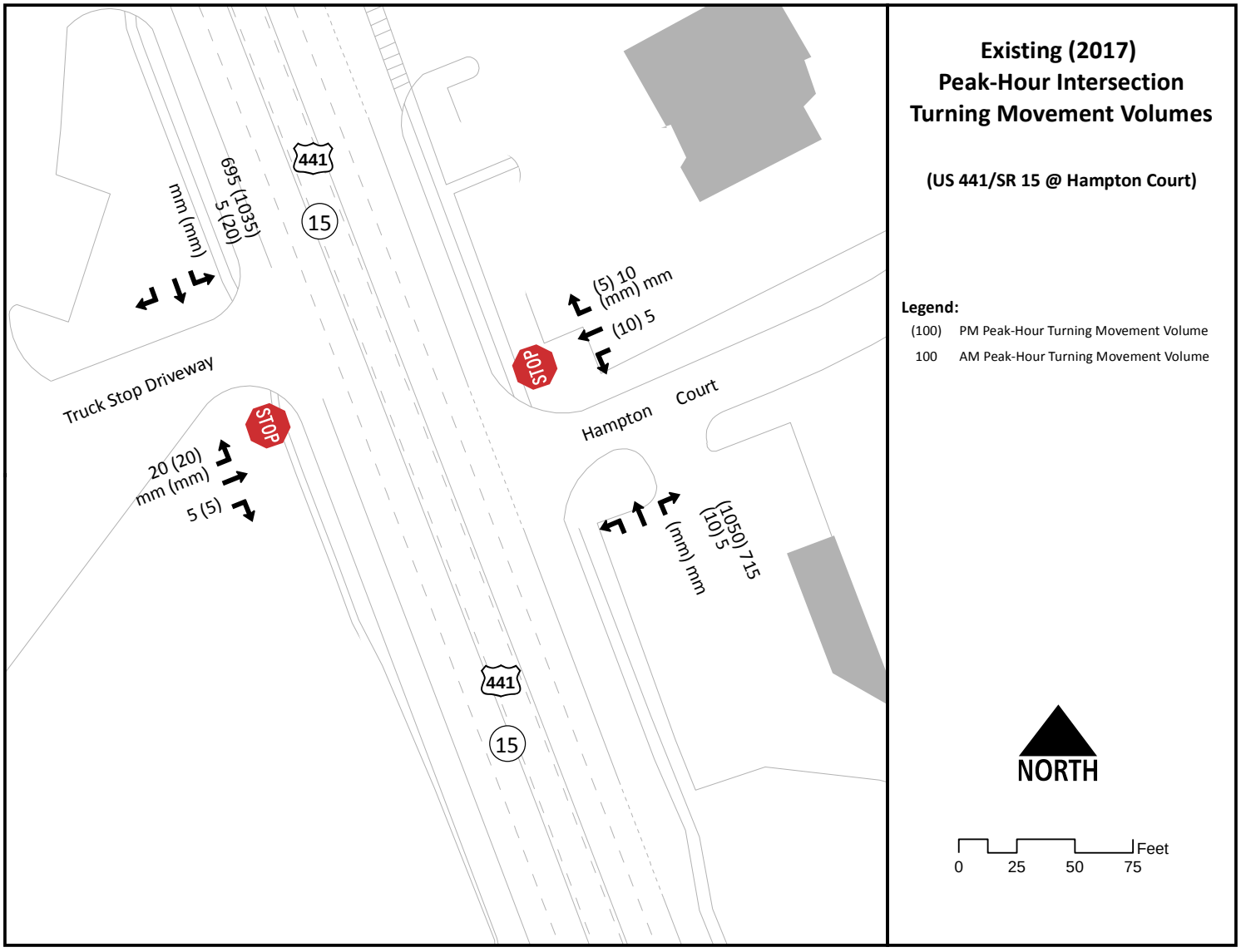
Peak-Hour Turning Movement Counts – Pottery Factory/QuikTrip Driveway



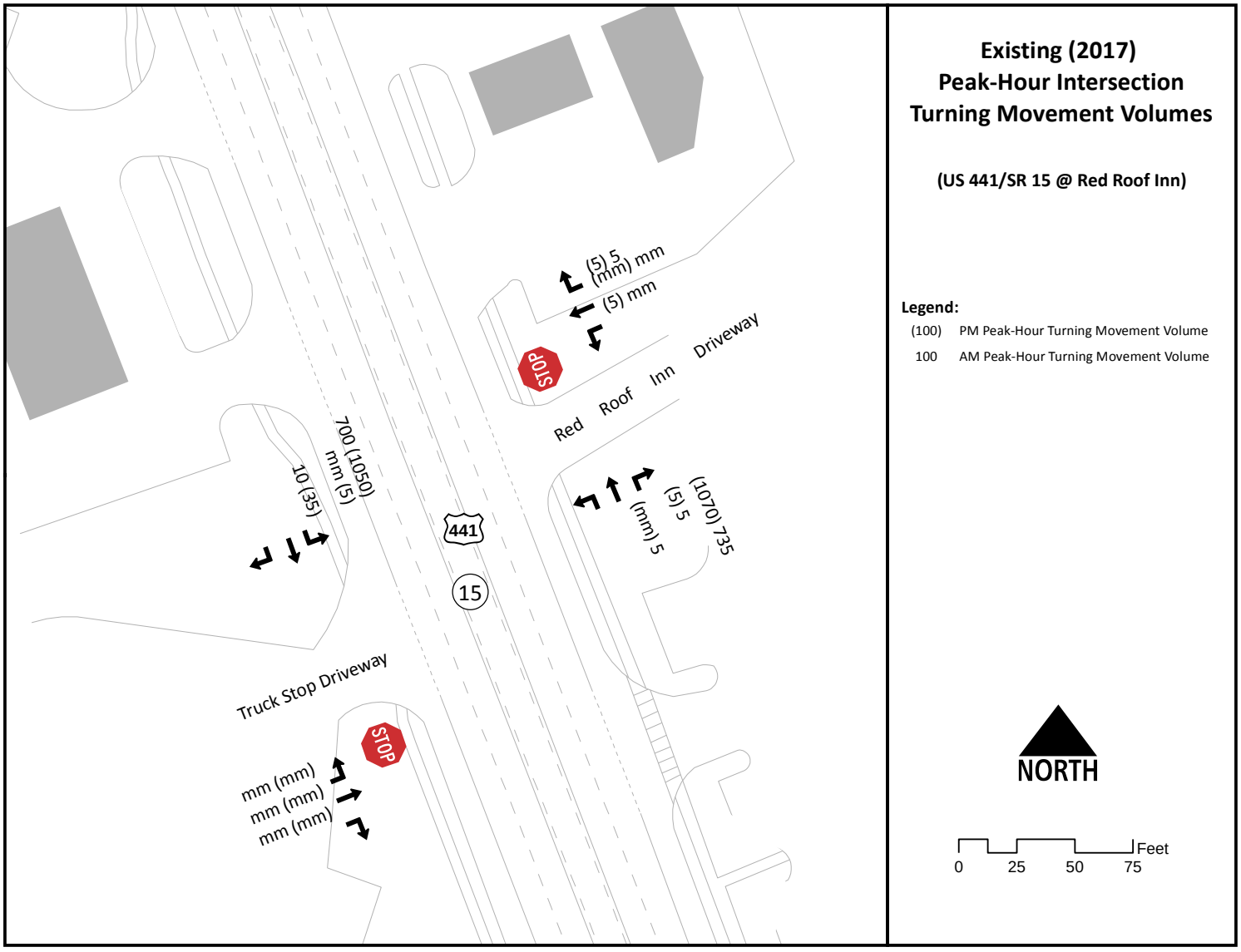
Peak-Hour Turning Movement Counts – Commerce Crossing



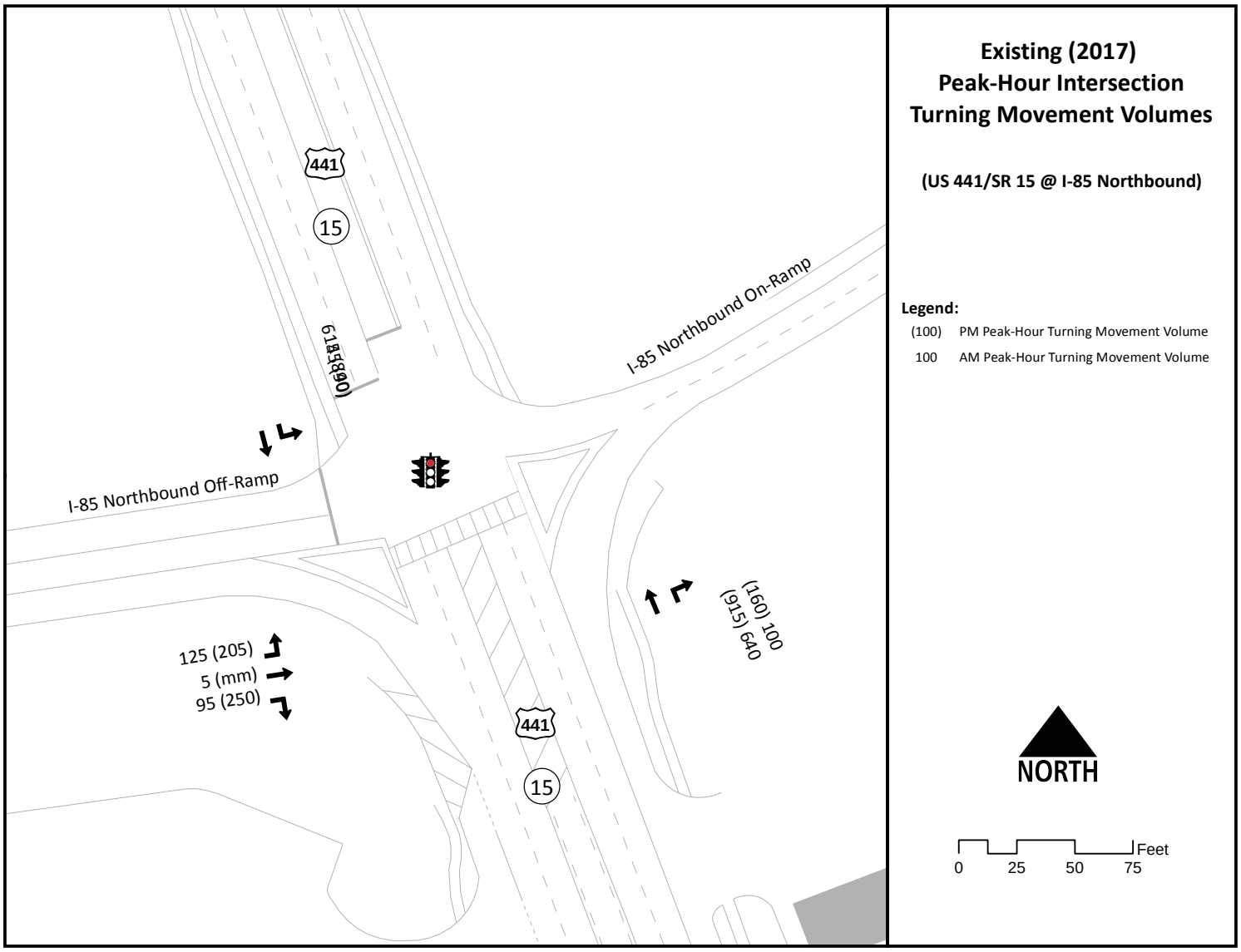
Peak-Hour Turning Movement Counts – Hampton Court



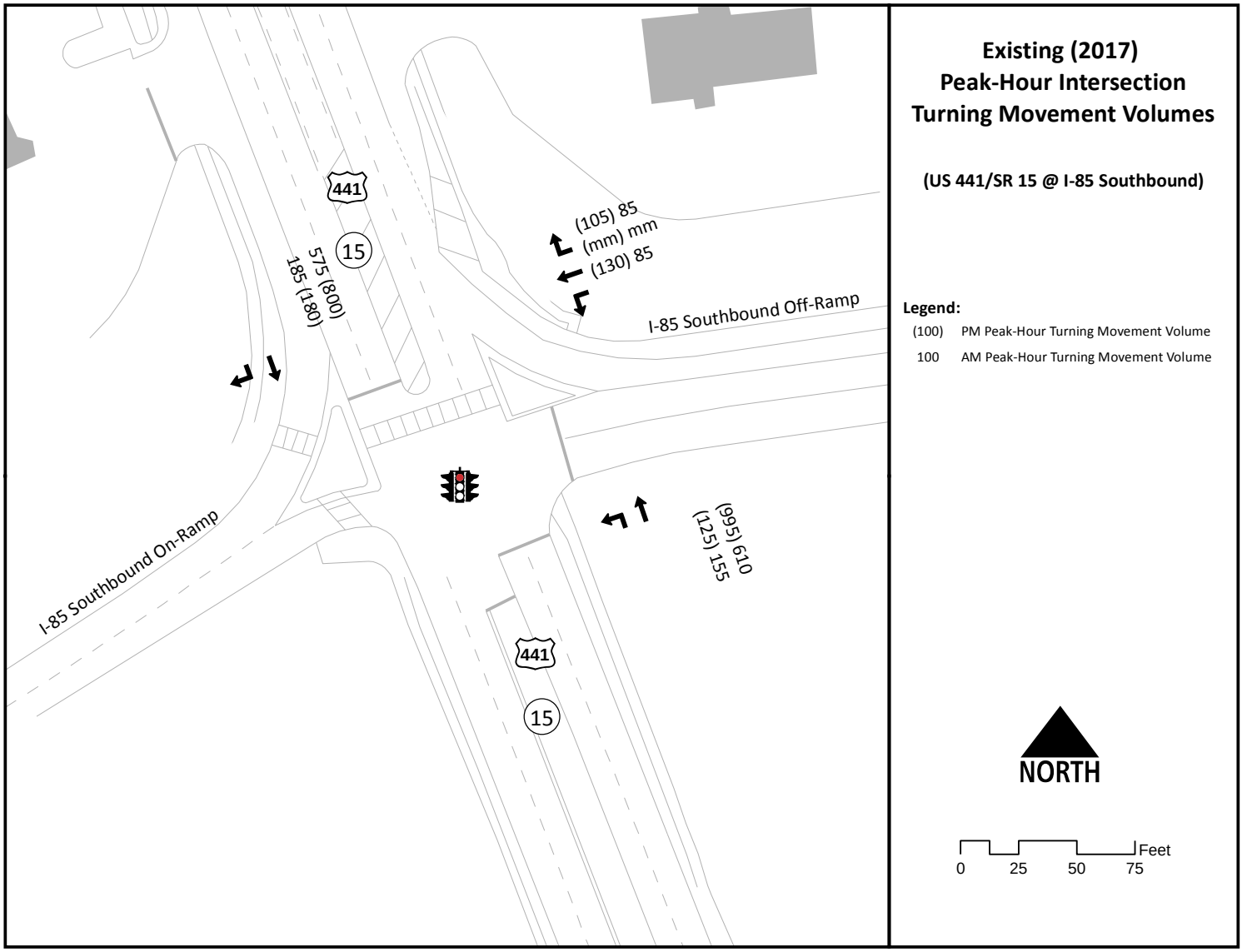
Peak-Hour Turning Movement Counts – Red Roof Inn Driveway



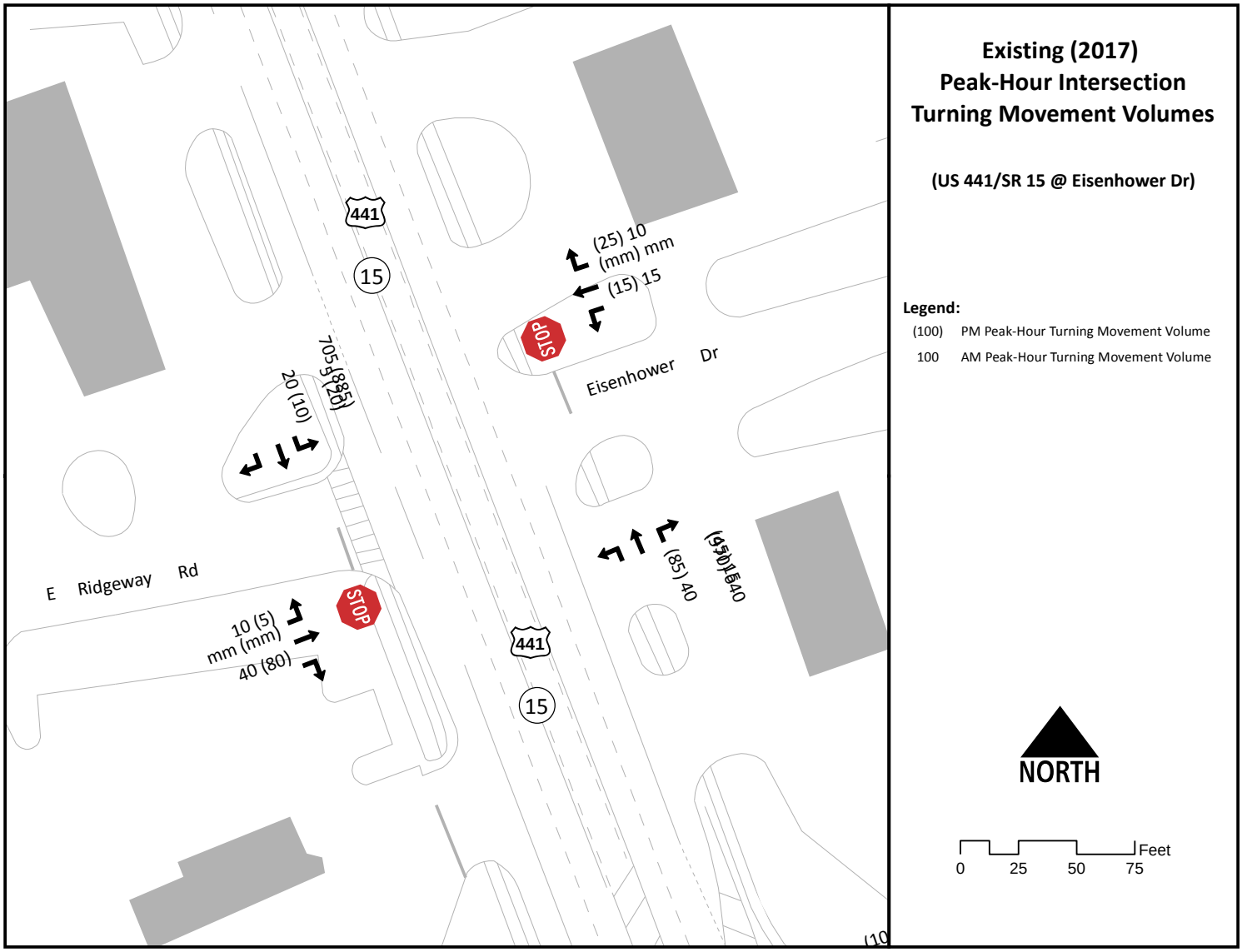
Peak-Hour Turning Movement Counts – I-85 Northbound Ramp



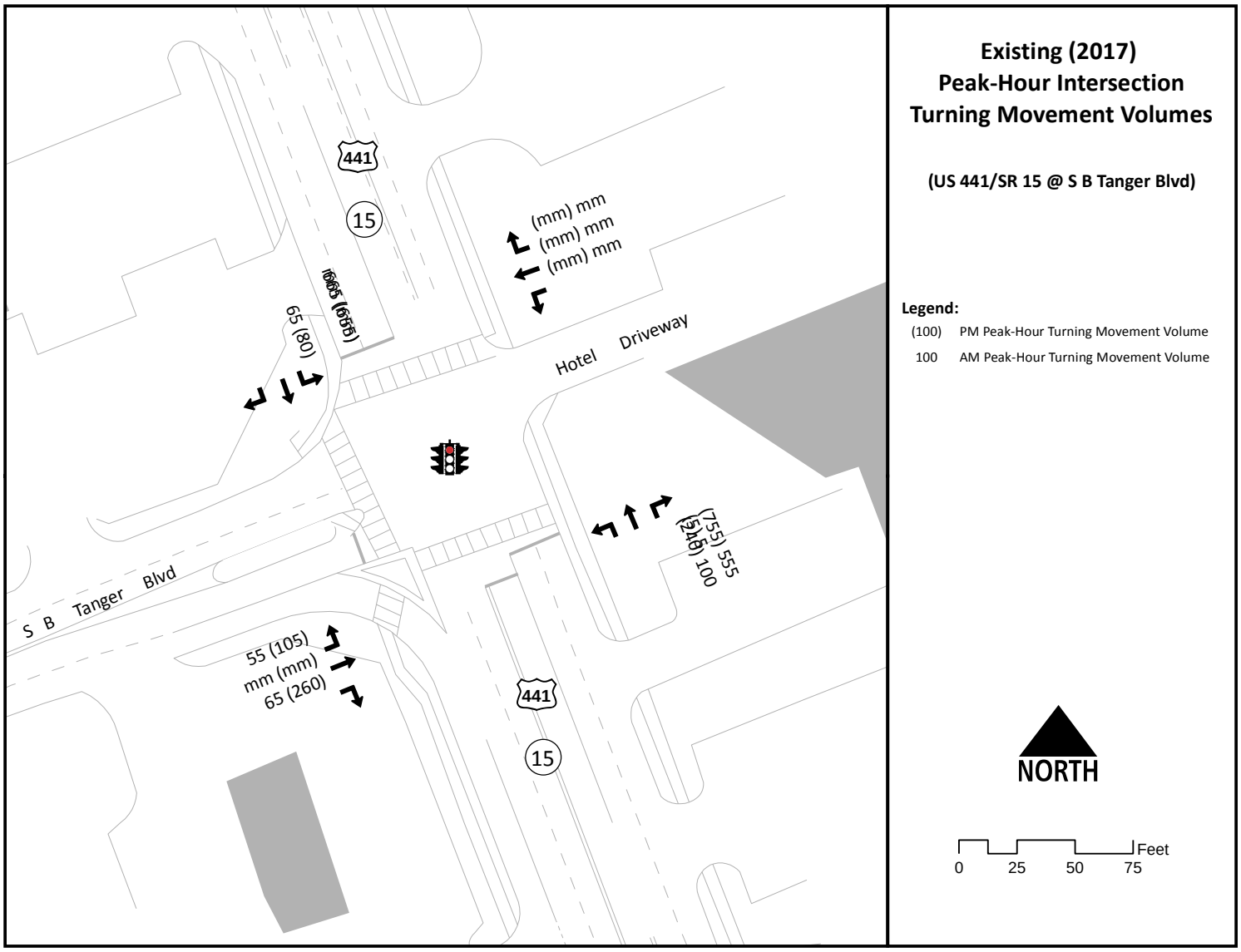
Peak-Hour Turning Movement Counts – I-85 Southbound Ramp



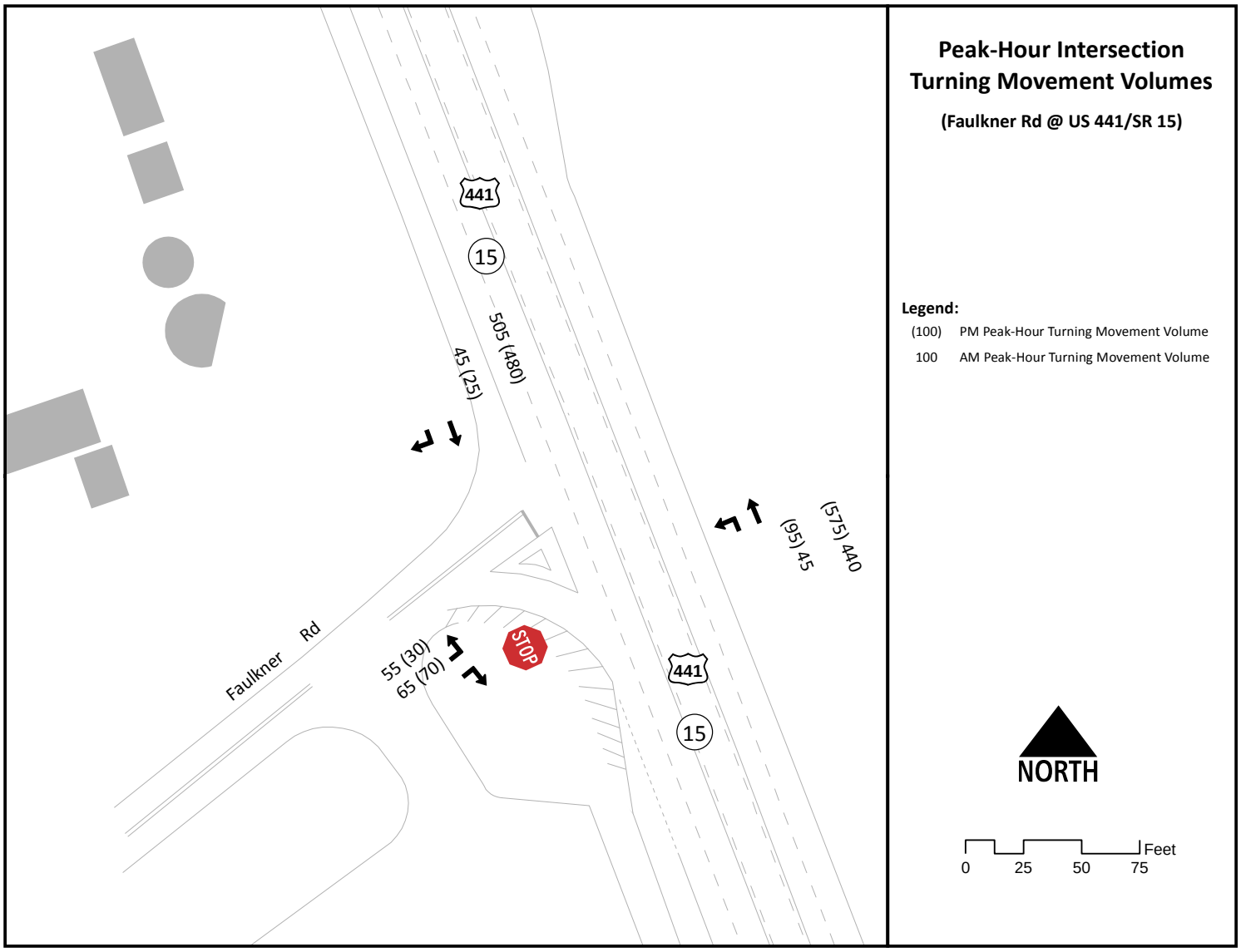
Peak-Hour Turning Movement Counts – Eisenhower Drive



Peak-Hour Turning Movement Counts – Steven B. Tanger Boulevard



Peak-Hour Turning Movement Counts – Faulkner Road



Appendix E: Synchro Analysis Results – 2017 Existing No-Build Condition

Intersection	Peak Period	Overall (Delay/ LOS)	V/C Ratio	Eastbound		Westbound		Northbound		Southbound		ICU (%/LOS)
				Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	
US441/SR 15 @ Faulkner Rd	AM	1.7/A	0.23	13	B	-	-	0.8	A	-	-	34/A
	PM	1.6/A	0.18	12.4	B	-	-	1.3	A	-	-	35/A
US 441/SR 15 @ S B Tanger Blvd	AM	6.2/A	0.49	38.2	D	-	-	1.2	A	5.4	A	51/A
	PM	10.4/B	0.64	27.1	C	-	-	5.0	A	9.4	A	59/B
US 441/SR 15 @ Eisenhower Dr	AM	0.9/A	0.23	11.4	B	14.1	B	0.5	A	0.1	A	36/A
	PM	1.3/A	0.31	11.7	B	18.3	C	0.8	A	0.2	A	48/A
US 441/SR 15 @ I-85 SB Ramps	AM	6.1/A	0.48	-	-	38.3	D	1.7	A	3.4	A	40/A
	PM	6.3/A	0.51	-	-	39.4	D	2.8	A	2.4	A	46/A
US 441/SR 15 @ I-85 NB Ramps	AM	7.0/A	0.49	33.5	C	-	-	3.5	A	2.1	A	40/A
	PM	12.1/B	0.79	42	D	-	-	6.6	A	3.7	A	46/A
US 441/SR 15 @ Red Roof Inn Driveway	AM	0.1/A	0.23	-	-	10.4	B	0.1	A	-	-	30/A
	PM	0.1/A	0.34	-	-	15.5	C	-	-	0	A	40/A
US 441/SR 15 @ Hampton Ct	AM	0.5/A	0.23	21.7	C	11.8	B	-	-	0.1	A	30/A
	PM	0.7/A	0.34	38.5	E	17.5	C	-	-	0.2	A	39/A
US 441/SR 15 @ Commerce Crossing Driveway	AM	0.2/A	0.23	11.9	B	-	-	0.2	A	-	-	30/A
	PM	1.0/A	0.33	16.4	C	-	-	0.4	A	-	-	47/A
US 441/SR 15 @ QuikTrip/Pottery Rd	AM	4.9/A	0.53	-	-	27.2	C	3.7	A	2	A	37/A
	PM	10.6/B	0.64	38.8	D	31.9	C	8.3	A	6	A	51/A
US 441/SR 15 @ Banks Crossing Dr	AM	0.2/A	0.23	9.9	A	22.4	C	0.2	A	-	-	31/A
	PM	0.3/A	0.34	10.6	B	16.4	C	0.1	A	-	-	45/A
US 441/SR 15 @ Industrial Park Dr	AM	0.9/A	0.27	-	-	11.9	B	-	-	0.6	A	36/A
	PM	1.1/A	0.43	-	-	15.8	C	-	-	0.8	A	48/A
US 441/SR 15 @ Sonny's Driveway	AM	0.8/A	0.2	-	-	10.9	B	-	-	1	A	35/A
	PM	2.3/A	0.31	-	-	11.7	B	-	-	1.9	A	46/A
US 441/SR 15 @ Walmart/Dallas Dr	AM	3.9/A	0.25	-	-	11.1	B	3.4	A	3.6	A	29/A
	PM	8.1/A	0.49	4.5	A	13.3	B	6.8	A	8.2	A	49/A
US 441/SR 15 @ Funapolis Fun Center	AM	0.0/A	0.3	-	-	-	-	-	-	-	-	23/A
	PM	0.2/A	0.42	-	-	14.8	B	-	-	0.2	A	38/A

Appendix F: Synchro Analysis Results – 2023 No-Build Condition

Intersection	Peak Period	Overall (Delay/ LOS)	V/C Ratio	Eastbound		Westbound		Northbound		Southbound		ICU (%/LOS)
				Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	
US441/SR 15 @ Faulkner Rd	AM	10.2/B	0.60	37.5	D	56.9	E	3.0	A	7.6	A	45/A
	PM	26.1/C	0.84	18.9	B	22.3	C	28.7	C	26.7	C	65/C
US 441/SR 15 @ Proposed Roadway	AM	0.1/A	0.45	-	-	17.1	C	-	-	0.1	A	39/A
	PM	0.2/A	0.48	-	-	16.8	C	0.0	A	10.9	B	43/A
US 441/SR 15 @ S B Tanger Blvd	AM	8.0/A	0.50	17.8	B	-	-	5.5	A	8.6	A	49/A
	PM	13.2/B	0.80	18.0	B	-	-	12.0	B	13.0	B	68/C
US 441/SR 15 @ Eisenhower Dr	AM	4.4/A	0.62	73.4	F	31.3	D	9.3	A	16.2	C	57/B
	PM	122.4/F	2.79	15.3	C	860.1	F	12.2	B	12.5	B	83/E
US 441/SR 15 @ I-85 SB Ramps	AM	5.6/A	0.66	-	-	44.3	D	1.2	A	3.1	A	55/A
	PM	10.2/B	0.61	-	-	44.7	D	4.1	A	9.7	A	63/B
US 441/SR 15 @ I-85 NB Ramps	AM	8.9/A	0.59	47.2	D	-	-	4.5	A	2.5	A	55/A
	PM	11.7/B	0.79	32.6	C	-	-	6.9	A	9.2	A	63/B
US 441/SR 15 @ Red Roof Inn Driveway	AM	0.1/A	0.42	24.2	C	13.9	B	9.7	A	0.0	A	53/A
	PM	0.1/A	0.52	-	-	15.5	C	0.0	A	11.6	B	55/A
US 441/SR 15 @ Hampton Ct	AM	0.6/A	0.41	26.6	D	14.2	B	0.0	A	12.0	B	47/A
	PM	1.1/A	0.51	100.7	F	14.4	B	0.0	A	11.5	B	54/A
US 441/SR 15 @ Commerce Crossing Driveway	AM	0.4/A	0.40	15.3	C	-	-	9.8	A	0.0	A	45/A
	PM	1.1/A	0.48	21.6	C	-	-	15.6	C	0.0	A	56/B
US 441/SR 15 @ QuikTrip/Pottery Rd	AM	5.9/A	0.64	53.9	D	23.3	C	5.4	A	1.7	A	56/B
	PM	10.8/B	0.70	24.6	C	19.4	B	8.4	A	10.5	B	63/B
US 441/SR 15 @ Banks Crossing Dr	AM	0.2/A	0.37	14.0	B	20.6	C	9.4	A	0.0	A	49/A
	PM	0.3/A	0.48	10.1	B	18.8	C	13.1	B	12.3	B	52/A
US 441/SR 15 @ Industrial Park Dr	AM	1.1/A	0.35	-	-	14.8	B	0.0	A	11.6	B	50/A
	PM	1.0/A	0.61	-	-	14.9	B	0.0	A	12.8	B	59/B
US 441/SR 15 @ Sonny's Driveway	AM	1.1/A	0.32	-	-	11.8	B	0.0	A	11.2	B	46/A
	PM	2.4/A	0.39	-	-	13.0	B	0.0	A	12.5	B	53/A
US 441/SR 15 @ Dallas Dr	AM	3.5/A	0.46	22.0	C	15.9	B	3.4	A	1.1	A	46/A
	PM	6.8/A	0.66	10.9	B	28.9	C	6.0	A	3.0	A	63/B
US 441/SR 15 @ Funapolis Fun Center	AM	0.0/A	0.43	-	-	12.4	B	0.0	A	0.0	A	46/A
	PM	0.2/A	0.55	-	-	16.2	C	0.0	A	11.5	B	46/A

Appendix G: Synchro Analysis Results – 2023 Build Condition (Raised Concrete Median)

Intersection	Peak Period	Overall (Delay/ LOS)	V/C Ratio	Eastbound		Westbound		Northbound		Southbound		ICU (%/LOS)
				Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	
US441/SR 15 @ Faulkner Rd	AM	20.1/C	0.80	30.9	C	43.1	D	15.6	B	15.8	B	59/B
	PM	111.4/F	1.41	81.7	F	170.4	F	116.2	F	40.5	D	113/H
US 441/SR 15 @ Proposed Roadway	AM	0.0/A	0.46	-	-	13.1	B	0.0	A	0.0	A	40/A
	PM	0.1/A	0.58	-	-	15.8	C	0.0	A	0.0	A	48/A
US 441/SR 15 @ S B Tanger Blvd	AM	0.1/A	0.46	10.8	B	-	-	0.0	A	0.0	A	45/A
	PM	0.4/A	0.68	16.4	C	-	-	0.0	A	0.0	A	62/B
US 441/SR 15 @ Eisenhower Dr	AM	0.4/A	0.34	13.3	B	10.9	B	0.0	A	0.0	A	39/A
	PM	1.2/A	0.52	22.3	C	14.4	B	0.0	A	0.0	A	56/B
US 441/SR 15 @ I-85 SB Ramps	AM	9.7/A	0.73	-	-	33.0	C	2.0	A	15.2	B	72/C
	PM	11.9/B	0.85	-	-	39.7	D	3.3	A	14.4	B	89/E
US 441/SR 15 @ I-85 NB Ramps	AM	6.9/A	0.57	27.8	C	-	-	4.6	A	3.4	A	54/A
	PM	9.6/A	0.85	48.7	D	-	-	3.8	A	2.2	A	71/C
US 441/SR 15 @ Red Roof Inn Driveway	AM	0.0/A	0.43	13.0	B	10.8	B	0.0	A	0.0	A	47/A
	PM	0.0/A	0.54	14.9	B	9.7	A	0.0	A	0.0	A	56/B
US 441/SR 15 @ Hampton Ct	AM	0.3/A	0.42	13.5	B	10.9	B	0.0	A	0.0	A	47/A
	PM	0.2/A	0.53	14.8	B	9.7	A	0.0	A	0.0	A	56/B
US 441/SR 15 @ Commerce Crossing Driveway	AM	0.2/A	0.43	11.4	B	-	-	0.0	A	0.0	A	40/A
	PM	0.5/A	0.50	13.0	B	-	-	0.0	A	0.0	A	58/B
US 441/SR 15 @ QuikTrip/Pottery Rd	AM	8.8/A	0.58	37.5	D	17.8	B	10.2	B	4.4	A	66/C
	PM	15.7/B	0.64	42.4	D	29.0	C	19.0	B	10.3	B	74/D
US 441/SR 15 @ Banks Crossing Dr	AM	0.1/A	0.38	9.8	A	13.8	B	0.0	A	0.0	A	43/A
	PM	0.2/A	0.49	10.4	B	14.3	B	0.0	A	0.0	A	52/A
US 441/SR 15 @ Industrial Park Dr	AM	0.7/A	0.35	-	-	14.5	B	0.0	A	0.0	A	43/A
	PM	0.5/A	0.67	-	-	14.4	B	0.0	A	0.0	A	47/A
US 441/SR 15 @ Sonny's Driveway	AM	0.6/A	0.34	-	-	12.8	B	0.0	A	0.0	A	42/A
	PM	1.5/A	0.50	-	-	16.4	B	0.0	A	0.0	A	52/A
US 441/SR 15 @ Dallas Dr	AM	4.4/A	0.42	35.8	D	24.3	C	2.5	A	3.3	A	59/B
	PM	27.9/C	1.22	23.2	C	60.6	E	4.0	A	39.8	D	76/D
US 441/SR 15 @ Funapolis Fun Center	AM	0.0/A	0.32	-	-	12.4	B	0.0	A	0.0	A	38/A
	PM	0.1/A	0.56	-	-	13.3	B	0.0	A	0.0	A	40/A

Appendix H: Synchro Analysis Results – 2023 Build Condition (Improved-Raised Concrete Median)

Intersection	Peak Period	Overall (Delay/ LOS)	V/C Ratio	Eastbound		Westbound		Northbound		Southbound		ICU (%/LOS)
				Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	
US441/SR 15 @ Faulkner Rd	AM	21.6/C	0.70	29.6	C	37.0	D	17.5	B	19.7	B	52/A
	PM	34.4/C	0.85	30.0	C	43.3	D	29.8	C	34.5	C	79/D
US 441/SR 15 @ Proposed Roadway	AM	0.0/A	0.46	-	-	13.1	B	0.0	A	0.0	A	40/A
	PM	0.1/A	0.58	-	-	15.8	C	0.0	A	0.0	A	48/A
US 441/SR 15 @ S B Tanger Blvd	AM	0.1/A	0.46	10.6	B	-	-	0.0	A	0.0	A	45/A
	PM	0.4/A	0.68	16.9	C	-	-	0.0	A	0.0	A	62/B
US 441/SR 15 @ Eisenhower Dr	AM	0.4/A	0.34	13.3	B	10.9	B	0.0	A	0.0	A	39/A
	PM	1.2/A	0.52	22.3	C	14.4	B	0.0	A	0.0	A	56/B
US 441/SR 15 @ I-85 SB Ramps	AM	8.2/A	0.73	-	-	33.0	C	2.0	A	11.3	B	72/C
	PM	15.5/B	0.85	-	-	39.7	D	3.7	A	21.2	C	89/E
US 441/SR 15 @ I-85 NB Ramps	AM	7.2/A	0.57	27.8	C	-	-	5.1	A	3.6	A	54/A
	PM	9.6/A	0.85	48.7	D	-	-	3.8	A	2.2	A	71/C
US 441/SR 15 @ Red Roof Inn Driveway	AM	0.0/A	0.43	13.0	B	10.8	B	0.0	A	0.0	A	47/A
	PM	0.0/A	0.54	14.9	B	9.7	A	0.0	A	0.0	A	56/B
US 441/SR 15 @ Hampton Ct	AM	0.3/A	0.42	13.5	B	10.9	B	0.0	A	0.0	A	47/A
	PM	0.2/A	0.53	14.8	B	9.7	A	0.0	A	0.0	A	56/B
US 441/SR 15 @ Commerce Crossing Driveway	AM	0.2/A	0.43	11.4	B	-	-	0.0	A	0.0	A	40/A
	PM	0.5/A	0.50	13.0	B	-	-	0.0	A	0.0	A	58/B
US 441/SR 15 @ QuikTrip/Pottery Rd	AM	9.9/A	0.58	37.5	D	17.8	B	12.3	B	4.4	A	66/C
	PM	13.7/B	0.64	42.4	D	29.0	C	14.5	B	9.7	A	74/D
US 441/SR 15 @ Banks Crossing Dr	AM	0.1/A	0.38	9.8	A	13.8	B	0.0	A	0.0	A	43/A
	PM	0.2/A	0.49	10.4	B	14.3	B	0.0	A	0.0	A	52/A
US 441/SR 15 @ Industrial Park Dr	AM	0.6/A	0.35	-	-	11.4	B	0.0	A	0.0	A	43/A
	PM	0.4/A	0.67	-	-	11.1	B	0.0	A	0.0	A	47/A
US 441/SR 15 @ Sonny's Driveway	AM	0.5/A	0.34	-	-	10.6	B	0.0	A	0.0	A	42/A
	PM	1.0/A	0.50	-	-	11.3	B	0.0	A	0.0	A	52/A
US 441/SR 15 @ Dallas Dr	AM	11.0/B	0.45	35.8	D	24.3	C	9.2	A	11.0	B	54/A
	PM	20.8/C	0.76	17.2	B	46.5	D	17.4	B	19.4	B	64/C
US 441/SR 15 @ Funapolis Fun Center	AM	0.0/A	0.32	-	-	12.4	B	0.0	A	0.0	A	38/A
	PM	0.1/A	0.56	-	-	13.3	B	0.0	A	0.0	A	40/A

Appendix I: Synchro Analysis Results – 2043 No-Build Condition

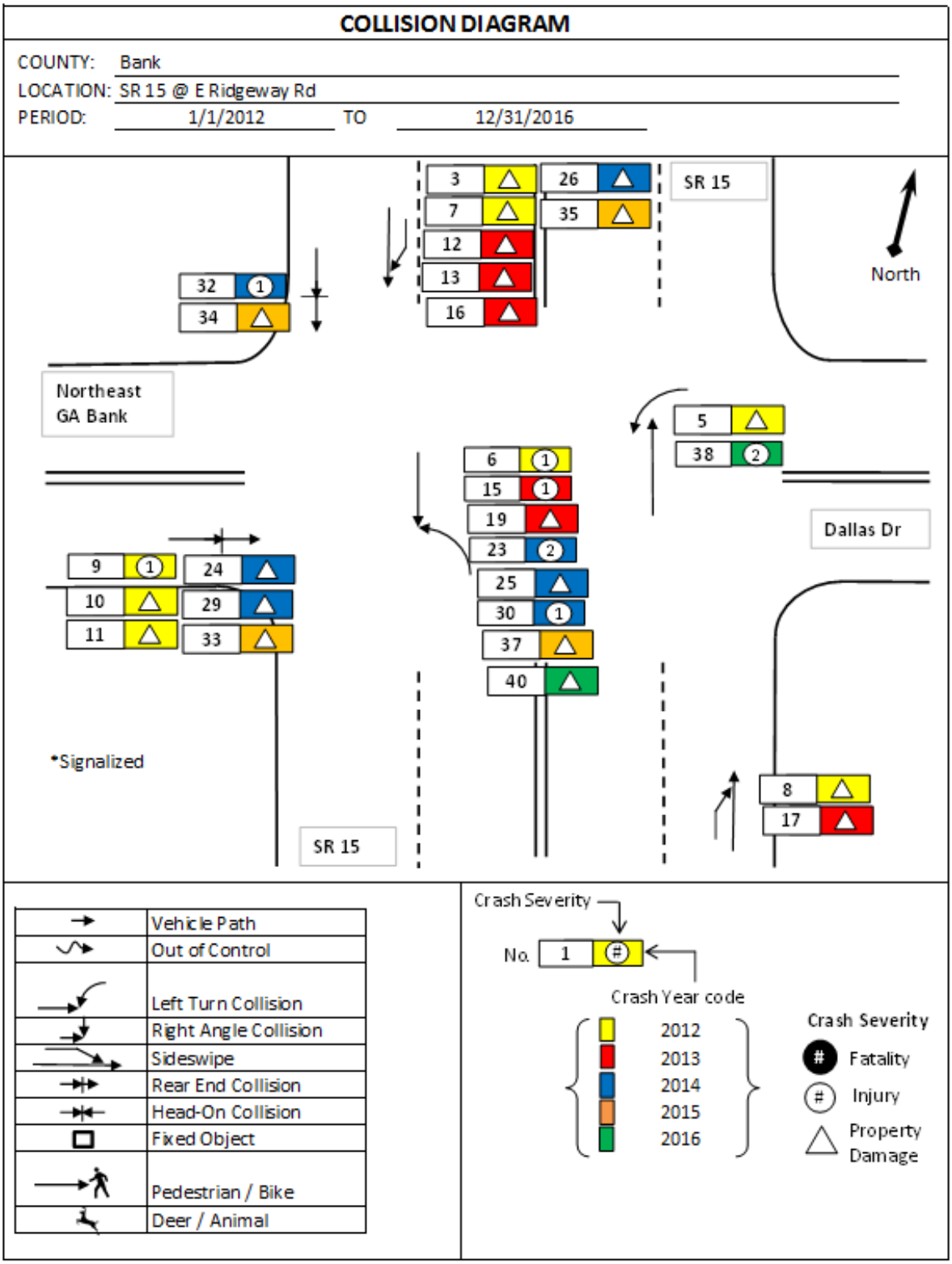
Intersection	Peak Period	Overall (Delay/ LOS)	V/C Ratio	Eastbound		Westbound		Northbound		Southbound		ICU (%/LOS)
				Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	
US441/SR 15 @ Faulkner Rd	AM	10.0/A	0.41	14.6	B	19.4	B	7.6	A	10.8	B	45/A
	PM	32.1/C	0.89	31.9	C	45	D	28.7	C	27.2	C	66/C
US 441/SR 15 @ Proposed Roadway	AM	0.1/A	0.48	-	-	17.6	C	-	-	0	A	41/A
	PM	0.2/A	0.52	-	-	19.3	C	-	-	0	A	45/A
US 441/SR 15 @ S B Tanger Blvd	AM	7.7/A	0.53	17.3	B	-	-	2.4	A	11.5	B	52/A
	PM	16.2/B	0.78	29.4	C	-	-	10.1	B	18.3	B	73/C
US 441/SR 15 @ Eisenhower Dr	AM	5.3/A	0.74	97.2	F	36.7	E	0.3	A	2.5	A	60/B
	PM	1330.4/F	3.35	16.8	C	Error	F	0.9	A	0.6	A	86/E
US 441/SR 15 @ I-85 SB Ramps	AM	7.1/A	0.7	-	-	46.7	D	2.7	A	4.5	A	57/B
	PM	7.2/A	0.67	-	-	48.3	D	3.8	A	3.6	A	67/C
US 441/SR 15 @ I-85 NB Ramps	AM	7.7/A	0.65	20.9	C	-	-	8.6	A	1.6	A	57/B
	PM	14.6/B	0.85	50	D	-	-	11.8	B	5.5	A	67/C
US 441/SR 15 @ Red Roof Inn Driveway	AM	0.1/A	0.45	23.4	C	12.1	B	0	A	-	-	55/B
	PM	0.1/A	0.55	-	-	18.7	C	-	-	0	A	58/B
US 441/SR 15 @ Hampton Ct	AM	0.6/A	0.43	26	D	12.3	B	-	-	0.1	A	51/A
	PM	2.0/A	0.71	190.5	F	18.8	C	-	-	0.2	A	57/B
US 441/SR 15 @ Commerce Crossing Driveway	AM	0.3/A	0.43	15.6	C	-	-	0.1	A	-	-	47/A
	PM	1.4/A	0.52	27.3	D	-	-	0.6	A	-	-	60/B
US 441/SR 15 @ QuikTrip/Pottery Rd	AM	6.8/A	0.57	22.5	C	11.7	B	6.6	A	5.6	A	58/B
	PM	14.2/B	0.71	44.1	D	33.7	C	10.8	B	12	B	67/C
US 441/SR 15 @ Banks Crossing Dr	AM	0.2/A	0.4	13.7	B	22.4	C	0.1	A	-	-	51/A
	PM	0.3/A	0.52	10.5	B	21.1	C	0.2	A	0	A	56/B
US 441/SR 15 @ Industrial Park Dr	AM	1.3/A	0.37	-	-	16.2	C	-	-	0.8	A	53/A
	PM	1.1/A	0.66	-	-	16.5	C	-	-	1	A	63/B
US 441/SR 15 @ Sonny's Driveway	AM	1.1/A	0.34	-	-	11.9	B	-	-	1.3	A	48/A
	PM	2.5/A	0.42	-	-	12.7	B	-	-	2.2	A	56/B
US 441/SR 15 @ Dallas Dr	AM	3.8/A	0.4	21.8	C	18.3	B	3.6	A	1	A	48/A
	PM	10.0/B	0.66	7.8	A	23.7	C	6.7	A	10.3	B	67/C
US 441/SR 15 @ Funapolis Fun Center	AM	0.0/A	0.46	-	-	12.9	B	-	-	-	-	40/A
	PM	0.3/A	0.6	-	-	17.1	C	-	-	0.2	A	49/A

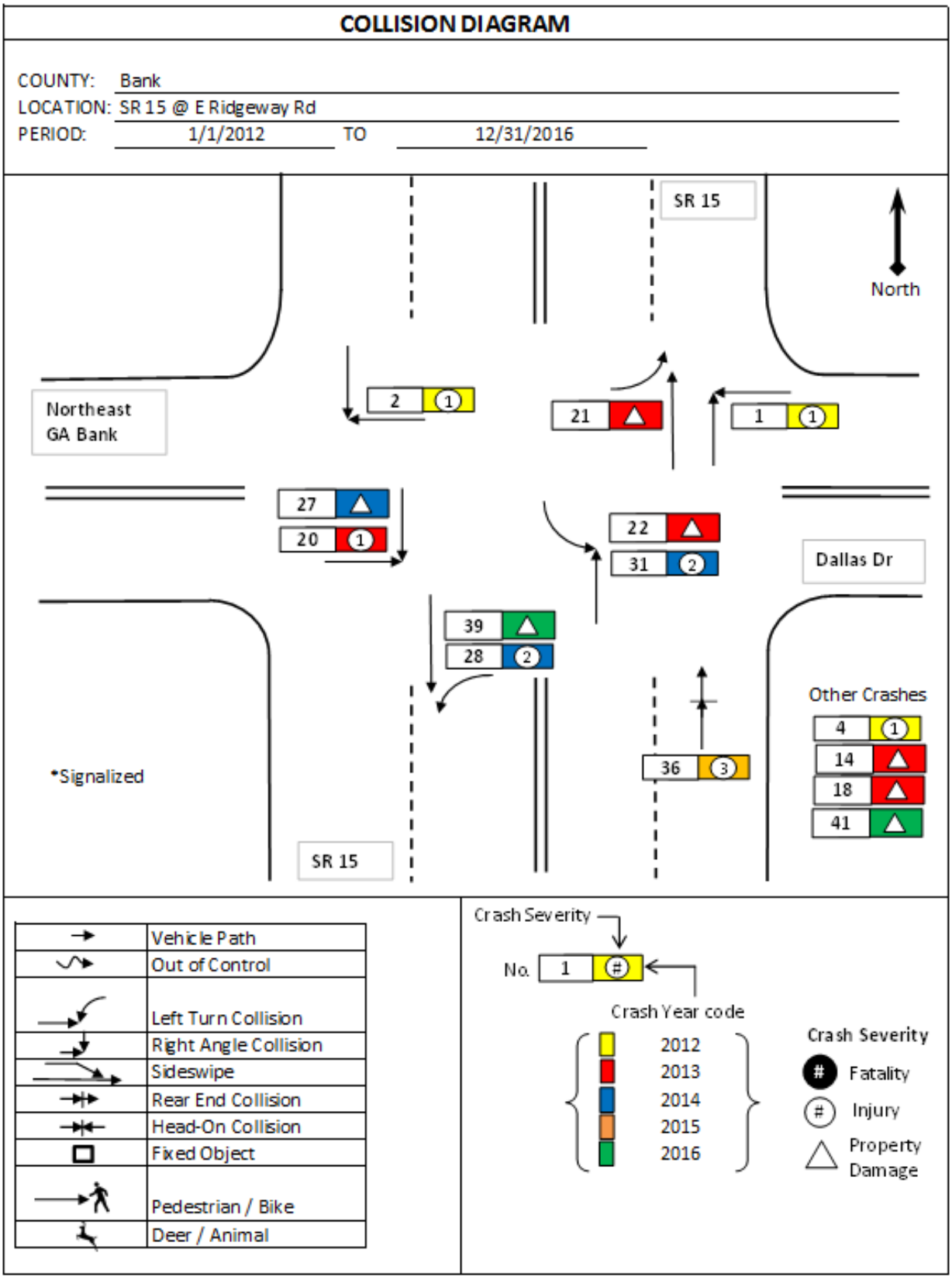
Appendix J: Synchro Analysis Results – 2043 Build Condition (Improved-Raised Concrete Median)

Intersection	Peak Period	Overall (Delay/ LOS)	V/C Ratio	Eastbound		Westbound		Northbound		Southbound		ICU (%/LOS)
				Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	
US441/SR 15 @ Faulkner Rd	AM	20.6/C	0.74	29.7	C	37.0	D	14.1	B	21.1	C	54/A
	PM	35.5/D	0.89	27.5	C	43.3	D	33.1	C	36.7	D	83/E
US 441/SR 15 @ Proposed Roadway	AM	0.0/A	0.49	-	-	13.6	B	0.0	A	0.0	A	42/A
	PM	0.1/A	0.63	-	-	17.0	B	0.0	A	0.0	A	51/A
US 441/SR 15 @ S B Tanger Blvd	AM	0.2/A	0.49	10.7	B	-	-	0.0	A	0.0	A	47/A
	PM	0.4/A	0.72	17.9	C	-	-	0.0	A	0.0	A	66/C
US 441/SR 15 @ Eisenhower Dr	AM	0.4/A	0.36	14.0	B	10.9	B	0.0	A	0.0	A	41/A
	PM	1.3/A	0.55	25.8	D	14.3	B	0.0	A	0.0	A	60/B
US 441/SR 15 @ I-85 SB Ramps	AM	8.6/A	0.79	-	-	33.7	C	1.8	A	12.5	B	76/D
	PM	23.2/C	0.96	-	-	39.5	D	6.7	A	33.9	C	95/F
US 441/SR 15 @ I-85 NB Ramps	AM	6.4/A	0.60	33.9	C	-	-	3.5	A	1.6	A	57/B
	PM	10.4/B	0.75	48.0	D	-	-	4.6	A	3.2	A	75/D
US 441/SR 15 @ Red Roof Inn Driveway	AM	0.0/A	0.46	13.2	B	10.2	B	0.0	A	0.0	A	49/A
	PM	0.0/A	0.58	14.0	B	9.6	A	0.0	A	0.0	A	60/B
US 441/SR 15 @ Hampton Ct	AM	0.3/A	0.45	13.9	B	10.3	B	0.0	A	0.0	A	49/A
	PM	0.2/A	0.57	13.9	B	9.7	A	0.0	A	0.0	A	59/B
US 441/SR 15 @ Commerce Crossing Driveway	AM	0.2/A	0.45	11.5	B	-	-	0.0	A	0.0	A	43/A
	PM	0.5/A	0.54	12.5	B	-	-	0.0	A	0.0	A	62/B
US 441/SR 15 @ QuikTrip/Pottery Rd	AM	9.5/A	0.70	36.2	D	21.4	C	7.6	A	9.0	A	70/C
	PM	13.9/B	0.73	35.7	D	27.7	C	13.9	B	10.7	B	79/D
US 441/SR 15 @ Banks Crossing Dr	AM	0.1/A	0.41	9.9	A	14.5	B	0.0	A	0.0	A	45/A
	PM	0.2/A	0.53	10.2	B	15.2	C	0.0	A	0.0	A	56/B
US 441/SR 15 @ Industrial Park Dr	AM	0.7/A	0.37	-	-	11.8	B	0.0	A	0.0	A	47/A
	PM	0.4/A	0.72	-	-	10.4	B	0.0	A	0.0	A	50/A
US 441/SR 15 @ Sonny's Driveway	AM	0.5/A	0.36	-	-	10.8	B	0.0	A	0.0	A	44/A
	PM	1.1/A	0.54	-	-	12.1	B	0.0	A	0.0	A	57/B
US 441/SR 15 @ Dallas Dr	AM	10.4/B	0.47	35.4	D	24.4	C	9.1	A	9.6	A	57/B
	PM	26.1/C	0.78	15.4	B	44.3	D	21.8	C	26.4	C	69/C
US 441/SR 15 @ Funapolis Fun Center	AM	0.0/A	0.34	-	-	12.9	B	0.0	A	0.0	A	40/A
	PM	0.1/A	0.61	-	-	14.2	B	0.0	A	0.0	A	43/A

Appendix K: Collision Diagrams

SR 15 & E Ridgeway Rd Intersection




COLLISION DIAGRAM
COUNTY: Bank
LOCATION: SR 15 @ E Ridgeway Rd
PERIOD: 1/1/2012 TO 12/31/2016
SR 15
North
Northeast GA Bank
2 1
21
1 1
27
20 1
22
31 2
Dallas Dr
39
28 2
*Signalized
36 3
Other Crashes
4 1
14
18
41
SR 15
Vehicle Path
Out of Control
Left Turn Collision
Right Angle Collision
Sideswipe
Rear End Collision
Head-On Collision
Fixed Object
Pedestrian / Bike
Deer / Animal
Crash Severity
No. 1 #
Crash Year code
2012
2013
2014
2015
2016
Crash Severity
Fatality
Injury
Property Damage

CRASH SUMMARY

COUNTY: Bank

LOCATION: SR 15 @ E Ridgeway Rd

PERIOD: 01/01/12 to 12/31/16

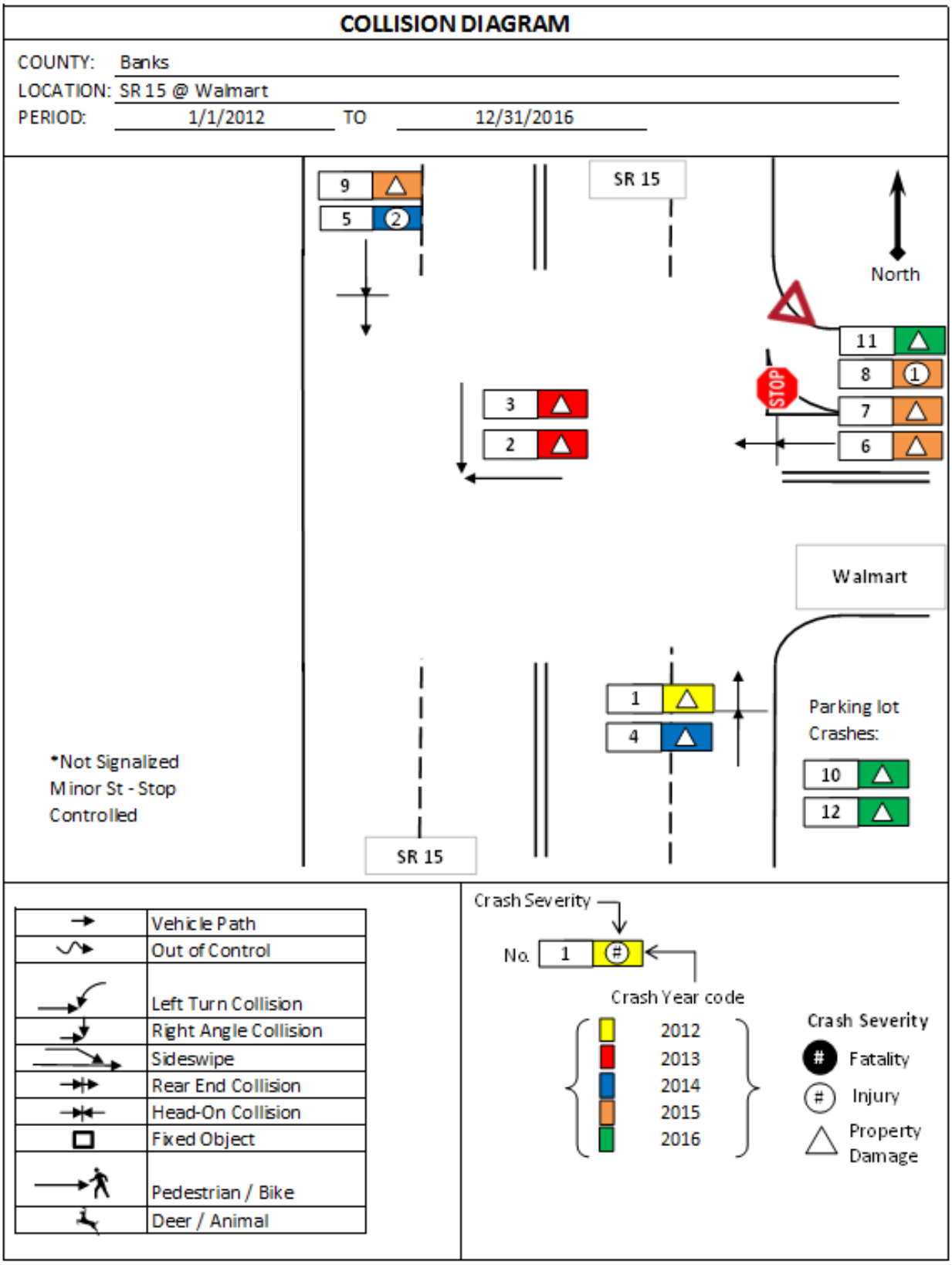
No.	Year	Date	Day	Time	Type	Fatal	Inj.	Light Cond.	Surface	Accident No.
1		1/12/2012	Thu	6:20:00 PM	Angle	0	1	Night	Wet	3975416
2		1/15/2012	Sun	4:24:00 PM	Angle	0	1	Day	Dry	3975197
3		7/4/2012	Wed	11:36:00 AM	Sideswipe	0	0	Day	Dry	4181720
4		7/11/2012	Wed	2:40:00 PM	Single Veh	0	1	Day	Dry	4144897
5		7/21/2012	Sat	3:30:00 PM	Angle	0	0	Day	Dry	4181701
6		8/11/2012	Sat	1:25:00 PM	Angle	0	1	Day	Dry	4172016
7		11/4/2012	Sun	8:39:00 PM	Sideswipe	0	0	Night	Dry	4249435
8		11/15/2012	Thu	5:50:00 PM	Sideswipe	0	0	Night	Dry	4266493
9		11/26/2012	Mon	12:03:00 PM	Rear End	0	1	Day	Dry	4274146
10		12/26/2012	Wed	12:00:00 AM	Rear End	0	0	Day	Dry	4310001
11		12/28/2012	Fri	12:53:00 PM	Sideswipe	0	0	Day	Dry	4311950
12		1/20/2013	Sun	5:00:00 PM	Sideswipe	0	0	Day	Dry	4333773
13		3/27/2013	Wed	6:36:00 PM	Sideswipe	0	0	Day	Dry	4400903
14		4/1/2013	Mon	7:15:00 AM	Angle	0	0	Day	Dry	4400203
15		6/5/2013	Wed	9:29:00 PM	Angle	0	1	Night	Wet	4471148
16		7/23/2013	Tue	4:02:00 PM	Sideswipe	0	0	Day	Dry	4518824
17		9/4/2013	Wed	12:40:00 PM	Sideswipe	0	0	Day	Dry	4561544
18		10/1/2013	Tue	1:15:00 PM	Angle	0	0	Day	Dry	4589388
19		10/2/2013	Wed	4:33:00 PM	Angle	0	0	Day	Dry	4598498
20		10/11/2013	Fri	5:29:00 PM	Angle	0	1	Day	Dry	5148293
21		12/22/2013	Sun	3:42:00 PM	Angle	0	0	Day	Wet	5148229
22		12/31/2013	Tue	12:05:00 PM	Angle	0	0	Day	Dry	4693970
23		2/27/2014	Thu	12:15:00 PM	Angle	0	2	Day	Dry	4746205
24		3/1/2014	Sat	8:28:00 PM	Rear End	0	0	Night	Dry	5148451
25		3/3/2014	Mon	9:55:00 AM	Angle	0	0	Day	Wet	4748994
26		6/18/2014	Wed	2:55:00 PM	Sideswipe	0	0	Day	Dry	5148414
27		6/21/2014	Sat	12:06:00 PM	Angle	0	0	Day	Dry	4885574
28		9/21/2014	Sun	2:09:00 PM	Angle	0	2	Day	Dry	4987323
29		9/30/2014	Tue	6:33:00 PM	Rear End	0	0	Day	Dry	5002974
30		10/25/2014	Sat	2:07:00 PM	Angle	0	1	Day	Dry	5029916
31		11/19/2014	Wed	6:30:00 PM	Angle	0	2	Night	Dry	5060321
32		12/22/2014	Mon	3:43:00 PM	Rear End	0	1	Day	Wet	5111105
33		3/27/2015	Fri	4:15:00 PM	Rear End	0	0	Day	Dry	5233485
34		6/29/2015	Mon	2:29:00 PM	Rear End	0	0	Day	Dry	5340583
35		7/31/2015	Fri	2:05:00 PM	Sideswipe	0	0	Day	Dry	5376523

CRASH SUMMARY

COUNTY: Bank
LOCATION: SR 15 @ E Ridgeway Rd
PERIOD: 01/01/12 to 12/31/16

No.	Year	Date	Day	Time	Type	Fatal	Inj.	Light Cond.	Surface	Accident No.
36		8/12/2015	Wed	8:43:00 PM	Rear End	0	3	Night	Dry	5389185
37		11/29/2015	Sun	5:04:00 PM	Angle	0	0	Day	Dry	5537452
38		4/22/2016	Fri	8:36:00 PM	Angle	0	2	Night	Dry	5731425
39		5/1/2016	Sun	3:02:00 PM	Angle	0	0	Day	Dry	5738088
40		9/3/2016	Sat	2:00:00 PM	Angle	0	0	Day	Dry	5905606
41		12/26/2016	Mon	10:15:00 AM	Rear End	0	0	Day	Dry	6055466

SR 15 & Walmart/Dallas Drive Intersection



CRASH SUMMARY

COUNTY: Banks

LOCATION: SR 15 @ Walmart

PERIOD: 01/01/12 to 12/31/16

No.	Year	Date	Day	Time	Type	Fatal	Inj.	Light Cond.	Surface	Accident No.
1		2/14/2012	Tue	10:53:00 AM	Rear End	0	0	Day	Wet	4042572
2		2/22/2013	Fri	6:50:00 PM	Angle	0	0	Night	Wet	4368380
3		3/6/2013	Wed	9:40:00 PM	Angle	0	0	Night	Dry	4382143
4		3/6/2014	Thu	5:21:00 PM	Rear End	0	0	Day	Wet	5148453
5		11/26/2014	Wed	4:06:00 PM	Rear End	0	2	Day	Dry	5071031
6		3/22/2015	Sun	3:36:00 PM	Rear End	0	0	Day	Wet	5226514
7		4/25/2015	Sat	12:26:00 PM	Rear End	0	0	Day	Dry	5266411
8		7/24/2015	Fri	12:06:00 PM	Rear End	0	1	Day	Dry	5368226
9		8/22/2015	Sat	11:20:00 AM	Rear End	0	0	Day	Dry	5400576
10		1/19/2016	Tue	5:02:00 PM	Rear End	0	0	Day	Dry	5604863
11		2/28/2016	Sun	11:41:00 AM	Rear End	0	0	Day	Dry	5653926
12		9/13/2016	Tue	2:23:00 PM	Rear End	0	0	Day	Dry	5918083
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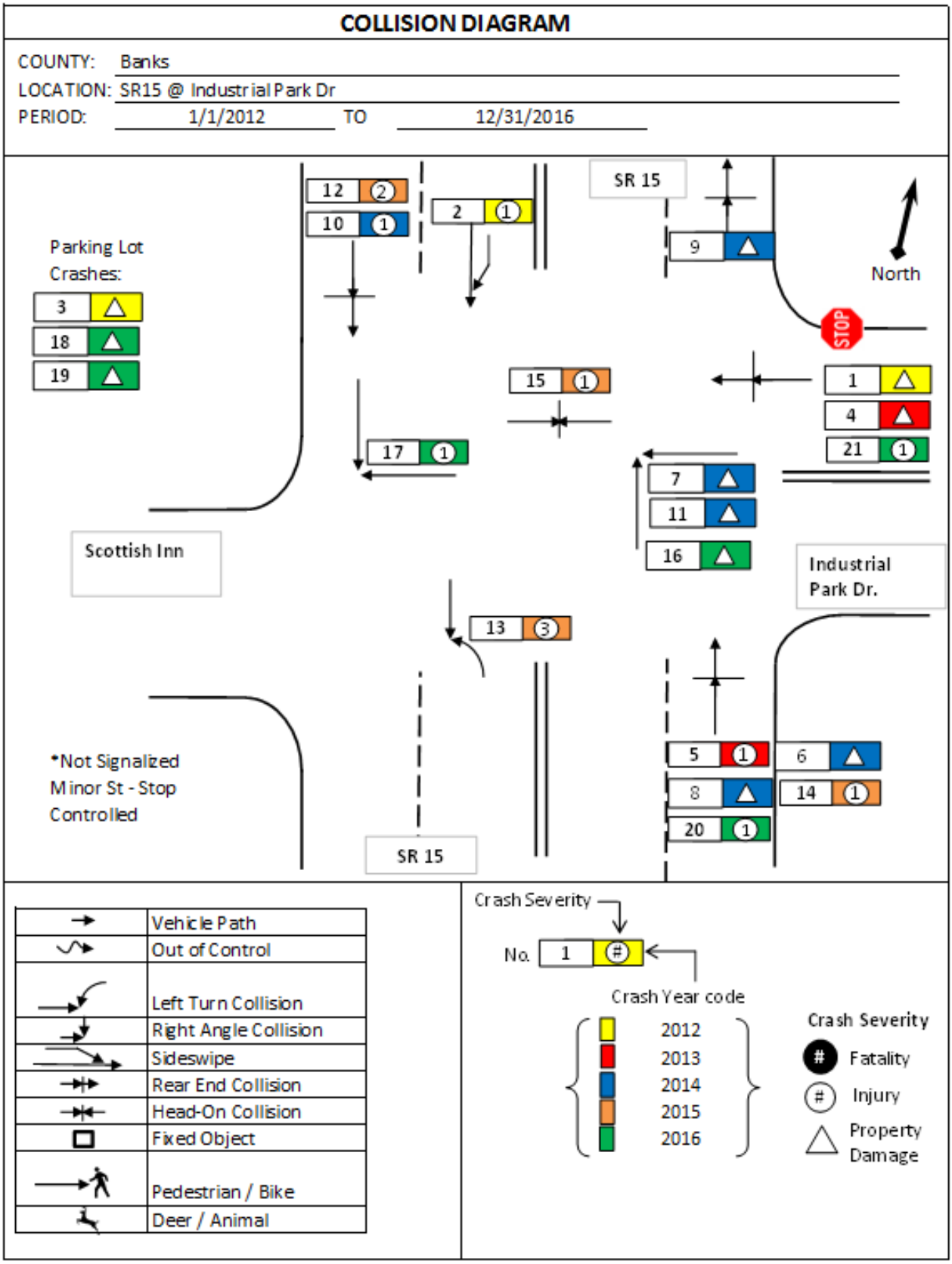
SR-15 & Industrial Park Intersection



CRASH SUMMARY

COUNTY: Banks
LOCATION: SR15 @ Industrial Park Dr
PERIOD: 01/01/12 to 12/31/16

No.	Year	Date	Day	Time	Type	Fatal	Inj.	Light Cond.	Surface	Accident No.
1		3/24/2012	Sat	12:53:00 PM	Rear End	0	0	Day	Dry	4040433
2		3/31/2012	Sat	11:22:00 PM	Sideswipe	0	1	Night	Dry	4053475
3		11/18/2012	Sun	3:53:00 PM	Single Veh	0	0	Day	Dry	4266261
4		4/19/2013	Fri	5:52:00 PM	Rear End	0	0	Dawn	Dry	5148466
5		9/1/2013	Sun	12:59:00 PM	Rear End	0	1	Day	Dry	5148282
6		1/25/2014	Sat	4:09:00 PM	Rear End	0	0	Day	Dry	5148383
7		2/9/2014	Sun	3:05:00 PM	Angle	0	0	Day	Dry	5148387
8		2/21/2014	Fri	1:05:00 PM	Rear End	0	0	Day	Dry	5148389
9		4/8/2014	Tue	6:25:00 AM	Rear End	0	0	Night	Dry	5148458
10		4/27/2014	Sun	7:08:00 PM	Rear End	0	1	Day	Dry	5148394
11		6/7/2014	Sat	9:33:00 PM	Angle	0	0	Night	Dry	5147526
12		3/10/2015	Tue	5:34:00 PM	Rear End	0	2	Day	Dry	5214171
13		4/12/2015	Sun	9:40:00 PM	Angle	0	3	Night	Dry	5262253
14		7/17/2015	Fri	4:47:00 PM	Rear End	0	1	Day	Dry	5360029
15		8/29/2015	Sat	9:05:00 PM	Head On	0	1	Night	Dry	5409357
16		1/15/2016	Fri	7:29:00 PM	Angle	0	0	Night	Dry	5602430
17		1/16/2016	Sat	8:55:00 PM	Angle	0	1	Night	Dry	5602427
18		3/4/2016	Fri	2:43:00 PM	Angle	0	0	Day	Dry	5662355
19		5/27/2016	Fri	5:55:00 PM	Angle	0	0	Day	Dry	5774724
20		9/28/2016	Wed	8:40:00 AM	Rear End	0	1	Day	Dry	5940310
21		12/1/2016	Thu	5:45:00 PM	Rear End	0	1	Night	Dry	6021934
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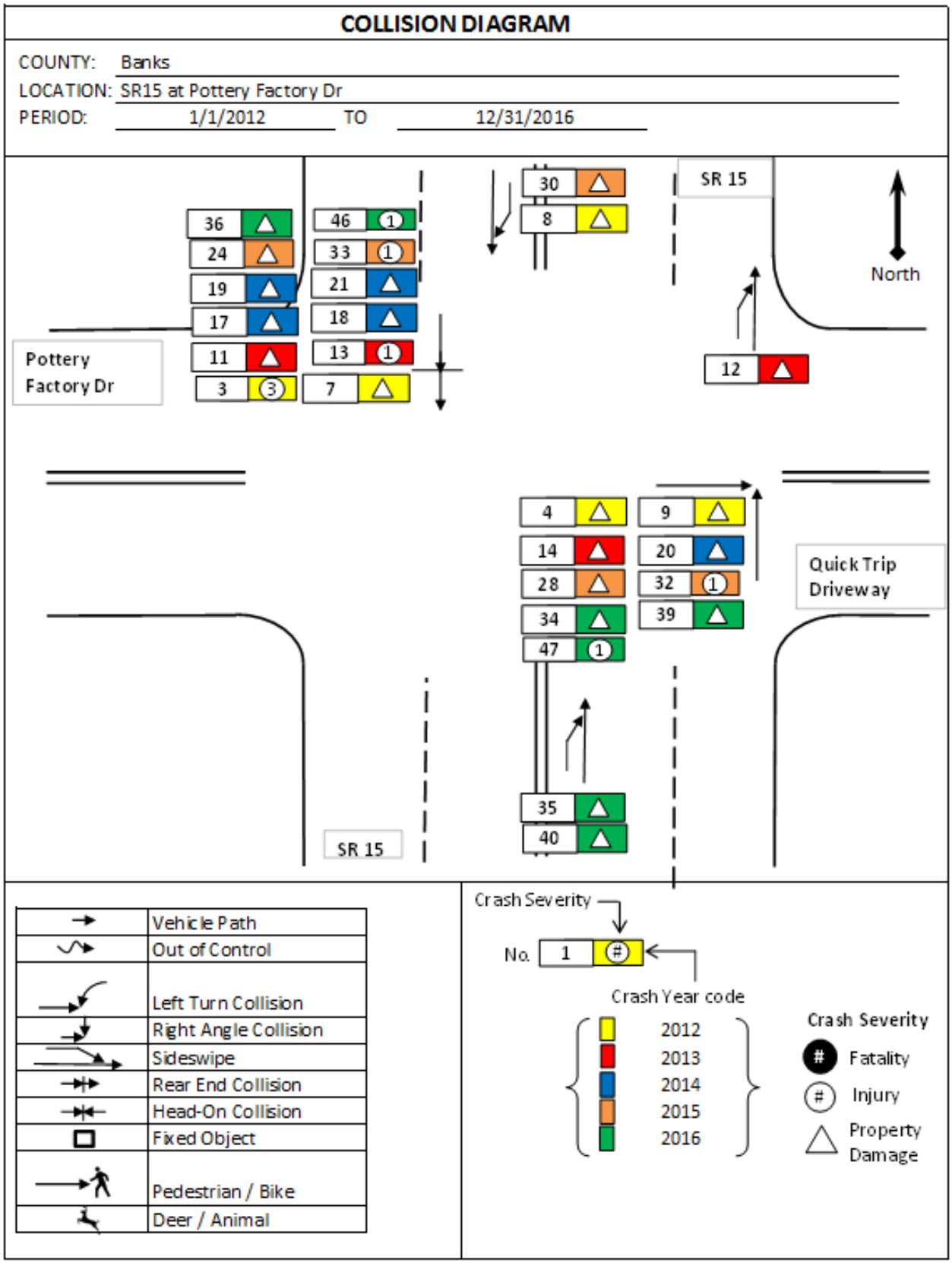
SR-15 & Pottery Factory Drive Intersection

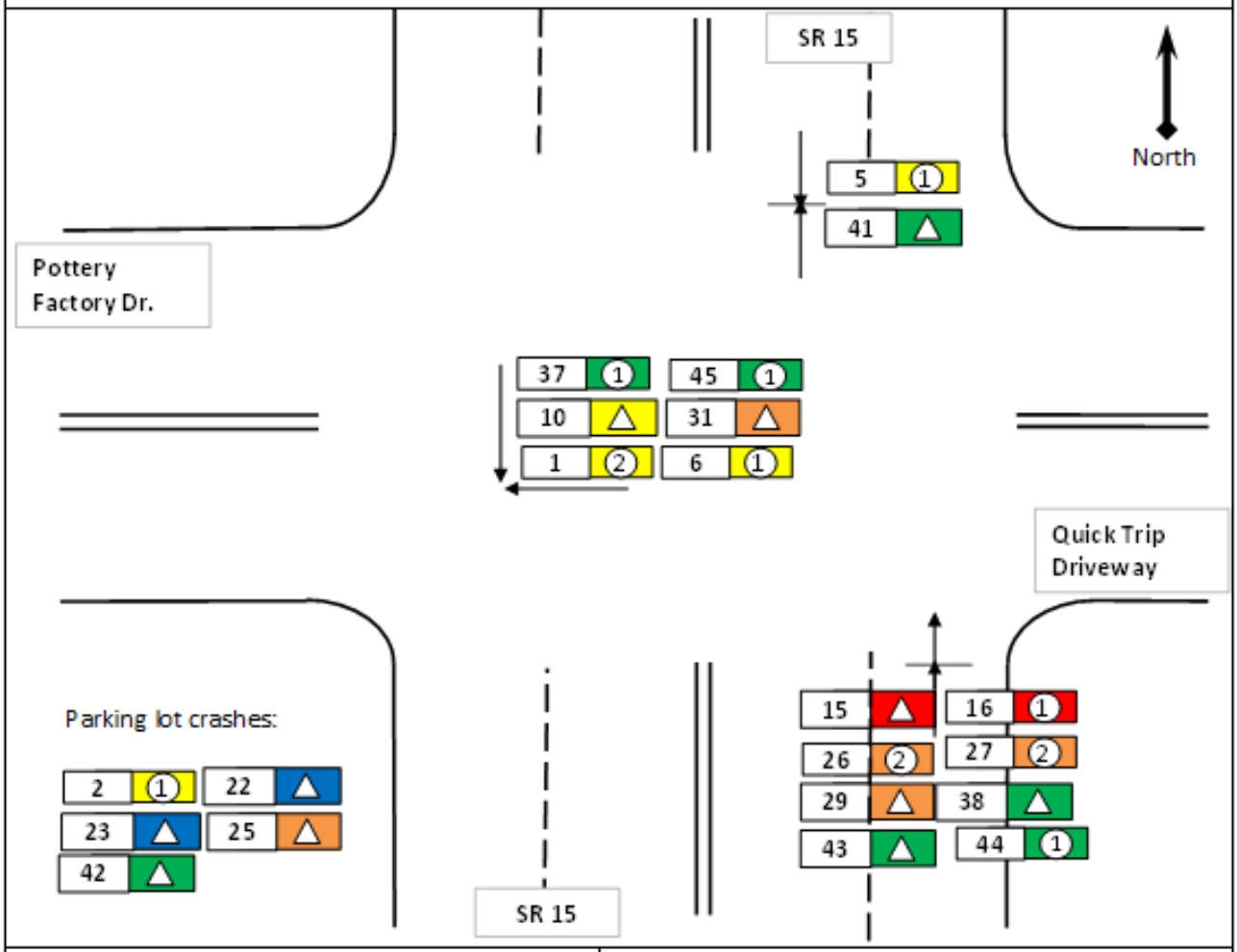


COLLISION DIAGRAM

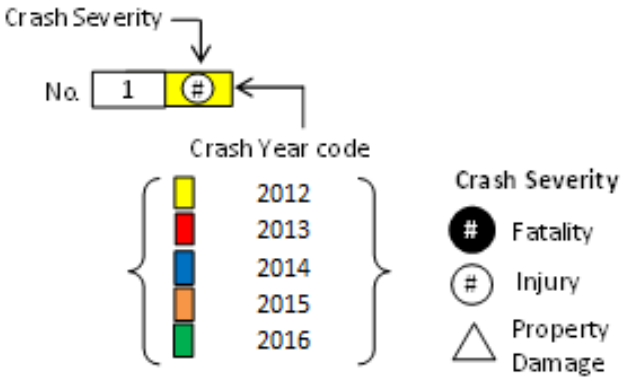
COUNTY: Banks

LOCATION: SR15 at Pottery Factory Dr

PERIOD: 1/1/2012 TO 12/31/2016



→	Vehicle Path
∿→	Out of Control
	Left Turn Collision
	Right Angle Collision
	Sideswipe
	Rear End Collision
	Head-On Collision
□	Fixed Object
	Pedestrian / Bike
	Deer / Animal



CRASH SUMMARY

COUNTY: Banks

LOCATION: SR15 at Pottery Factory Dr

PERIOD: 01/01/12 to 12/31/16

No.	Year	Date	Day	Time	Type	Fatal	Inj.	Light Cond.	Surface	Accident No.
1		3/12/2012	Mon	8:17:00 PM	Angle	0	2	Night	Wet	4025946
2		3/22/2012	Thu	5:22:00 PM	Rear End	0	1	Day	Dry	4053462
3		3/25/2012	Sun	6:30:00 PM	Rear End	0	3	Day	Dry	4041064
4		5/10/2012	Thu	4:10:00 PM	Angle	0	0	Day	Dry	4120892
5		5/11/2012	Fri	4:24:00 PM	Head On	0	1	Day	Dry	4084644
6		6/29/2012	Fri	1:53:00 PM	Angle	0	1	Day	Dry	4130585
7		7/5/2012	Thu	1:31:00 PM	Rear End	0	0	Day	Dry	4141271
8		7/28/2012	Sat	5:47:00 PM	Sideswipe	0	0	Day	Dry	4160768
9		8/19/2012	Sun	2:17:00 PM	Angle	0	0	Day	Dry	4216267
10		10/4/2012	Thu	12:05:00 PM	Angle	0	0	Day	Dry	4224110
11		1/14/2013	Mon	7:15:00 PM	Rear End	0	0	Night	Wet	4327876
12		4/3/2013	Wed	4:21:00 PM	Sideswipe	0	0	Day	Dry	5147544
13		6/5/2013	Wed	4:10:00 PM	Rear End	0	1	Day	Wet	4468958
14		8/30/2013	Fri	5:55:00 PM	Angle	0	0	Day	Dry	5148280
15		9/13/2013	Fri	4:17:00 PM	Rear End	0	0	Day	Dry	4576208
16		11/18/2013	Mon	6:08:00 PM	Rear End	0	1	Night	Dry	5148269
17		1/7/2014	Tue	5:14:00 PM	Rear End	0	0	Day	Dry	4697683
18		7/8/2014	Tue	3:09:00 PM	Rear End	0	0	Day	Dry	4902148
19		8/30/2014	Sat	2:02:00 PM	Rear End	0	0	Day	Dry	4958178
20		10/6/2014	Mon	12:34:00 PM	Angle	0	0	Day	Dry	5008450
21		10/26/2014	Sun	8:34:00 PM	Rear End	0	0	Night	Dry	5033964
22		11/3/2014	Mon	10:19:00 AM	Angle	0	0	Day	Dry	5041276
23		12/28/2014	Sun	8:44:00 PM	Angle	0	0	Night	Wet	5109893
24		1/19/2015	Mon	11:58:00 PM	Rear End	0	0	Night	Dry	5135116
25		1/20/2015	Tue	12:41:00 AM	Single Veh	0	0	Night	Dry	5135103
26		3/24/2015	Tue	3:28:00 PM	Rear End	0	2	Day	Dry	5230909
27		3/24/2015	Tue	3:28:00 PM	Rear End	0	2	Day	Dry	5230910
28		8/10/2015	Mon	4:33:00 PM	Angle	0	0	Day	Dry	5385996
29		8/15/2015	Sat	4:35:00 PM	Rear End	0	0	Day	Dry	5390763
30		8/15/2015	Sat	5:10:00 PM	Sideswipe	0	0	Day	Dry	5390764
31		8/27/2015	Thu	12:08:00 PM	Angle	0	0	Day	Dry	5405669
32		11/10/2015	Tue	5:16:00 PM	Angle	0	1	Day	Dry	5507061
33		11/28/2015	Sat	9:10:00 PM	Rear End	0	1	Night	Dry	5528379
34		1/25/2016	Mon	6:05:00 PM	Angle	0	0	Dusk	Dry	5611830
35		1/25/2016	Mon	6:10:00 PM	Sideswipe	0	0	Dusk	Dry	5611829

CRASH SUMMARY

COUNTY: Banks
LOCATION: SR15 at Pottery Factory Dr
PERIOD: 01/01/12 to 12/31/16

No.	Year	Date	Day	Time	Type	Fatal	Inj.	Light Cond.	Surface	Accident No.
36		2/1/2016	Mon	4:11:00 PM	Rear End	0	0	Day	Dry	5619502
37		3/11/2016	Fri	9:58:00 PM	Angle	0	1	Night	Dry	5672001
38		4/23/2016	Sat	9:51:00 AM	Rear End	0	0	Day	Dry	5727042
39		6/30/2016	Thu	8:44:00 PM	Angle	0	0	Night	Dry	5835238
40		9/3/2016	Sat	10:20:00 AM	Sideswipe	0	0	Day	Dry	5905618
41		9/18/2016	Sun	11:56:00 AM	Head On	0	0	Day	Dry	5923563
42		9/30/2016	Fri	2:55:00 PM	Angle	0	0	Day	Dry	5940987
43		11/22/2016	Tue	2:47:00 PM	Rear End	0	0	Day	Dry	6010953
44		11/23/2016	Wed	4:54:00 PM	Rear End	0	1	Day	Dry	6011891
45		12/2/2016	Fri	9:33:00 AM	Angle	0	1	Day	Dry	6024043
46		12/19/2016	Mon	11:47:00 AM	Rear End	0	1	Day	Dry	6048452
47		12/24/2016	Sat	8:03:00 PM	Angle	0	1	Night	Dry	6054653
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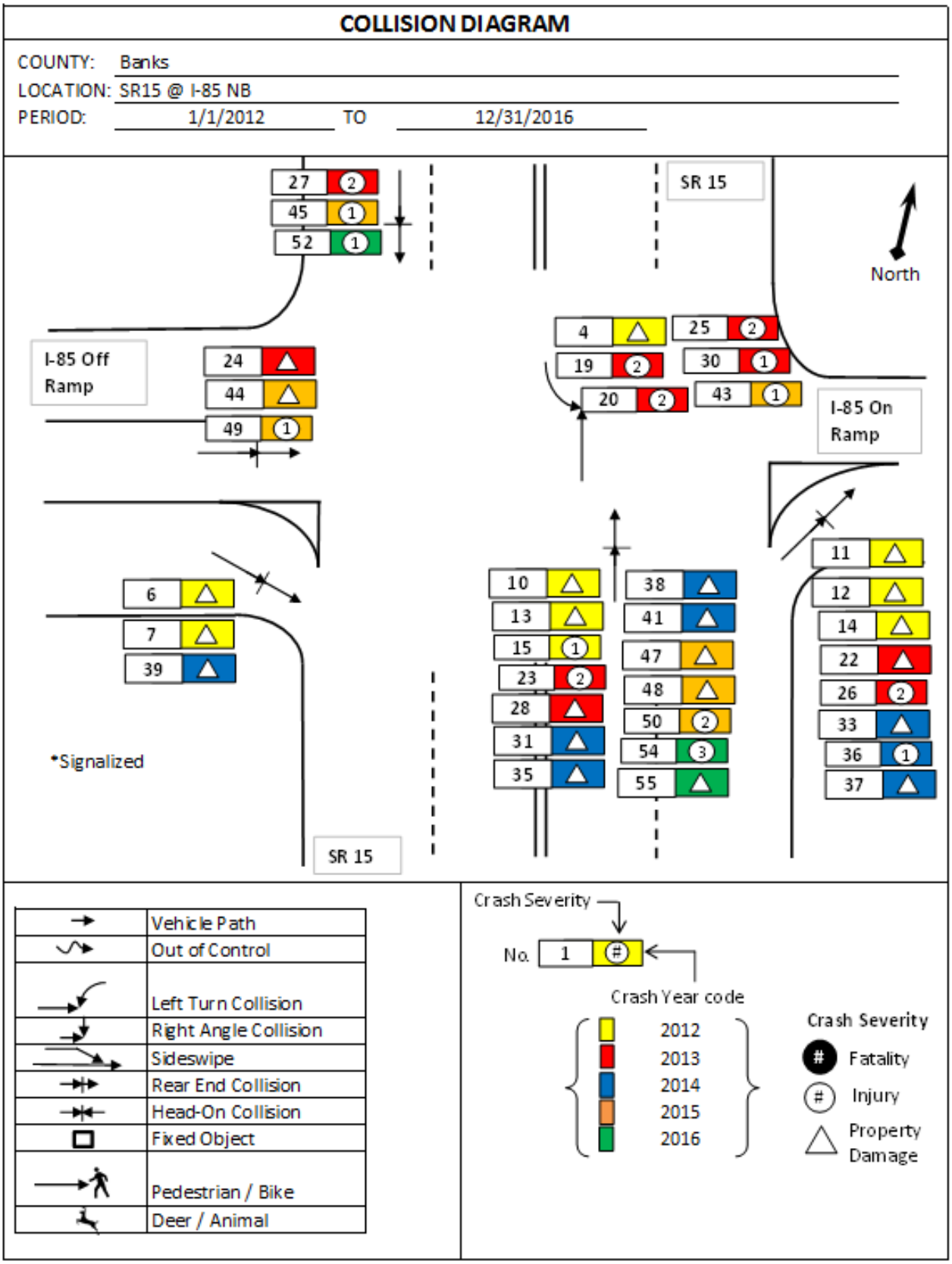
SR-15 & I-85 Northbound Ramp Intersection

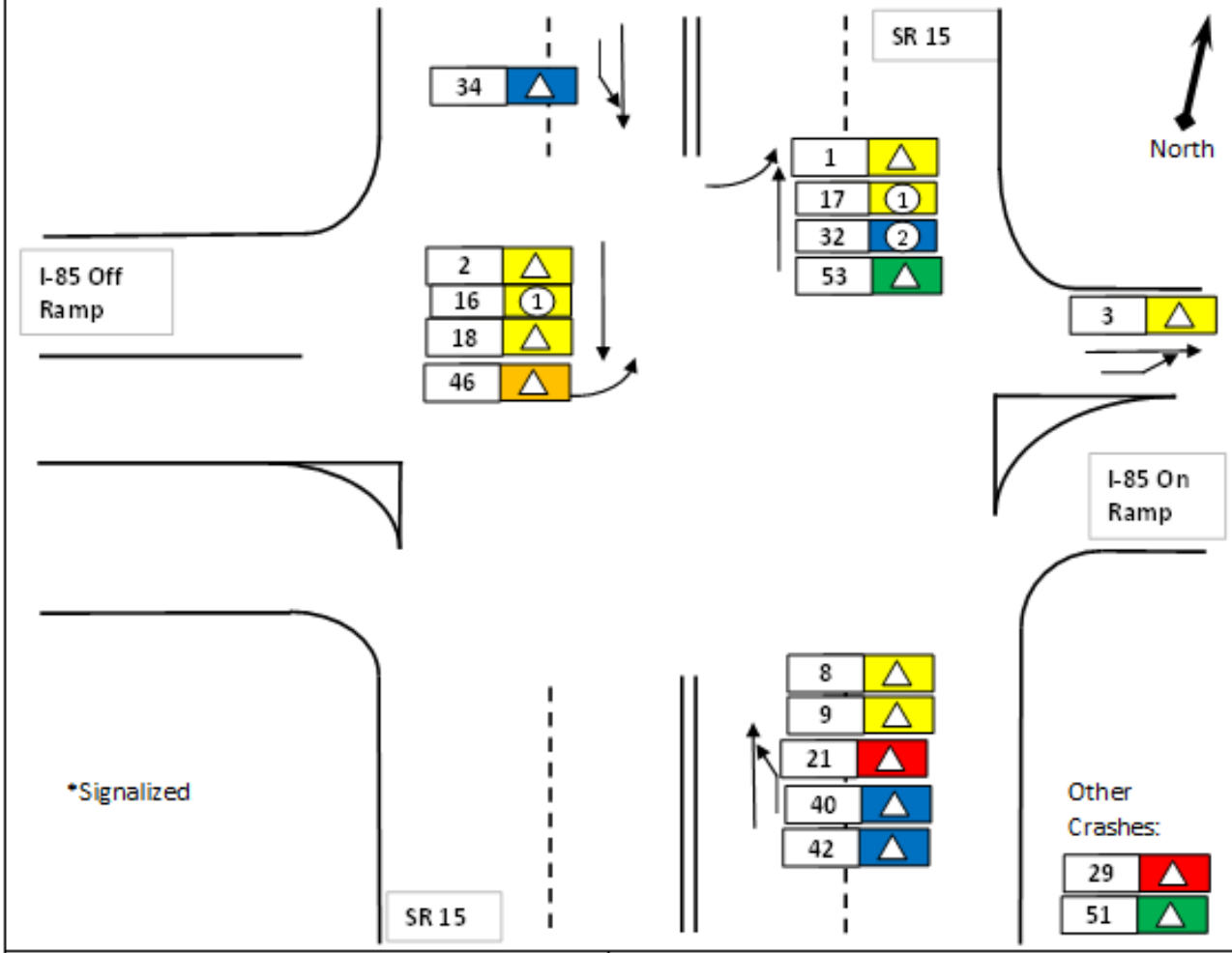


COLLISION DIAGRAM

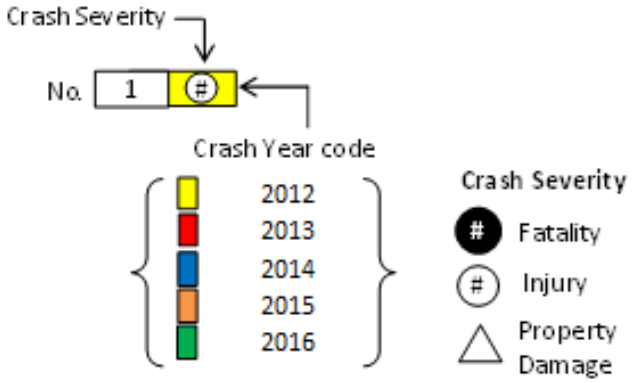
COUNTY: Banks

LOCATION: SR15 @ I-85 NB

PERIOD: 1/1/2012 TO 12/31/2016



→	Vehicle Path
⇝	Out of Control
↱	Left Turn Collision
↓	Right Angle Collision
⇉	Sideswipe
→|←	Rear End Collision
→←|	Head-On Collision
□	Fixed Object
→ 🚶	Pedestrian / Bike
🦌	Deer / Animal



CRASH SUMMARY

COUNTY: Banks

LOCATION: SR15 @ I-85 NB

PERIOD: 01/01/12 to 12/31/16

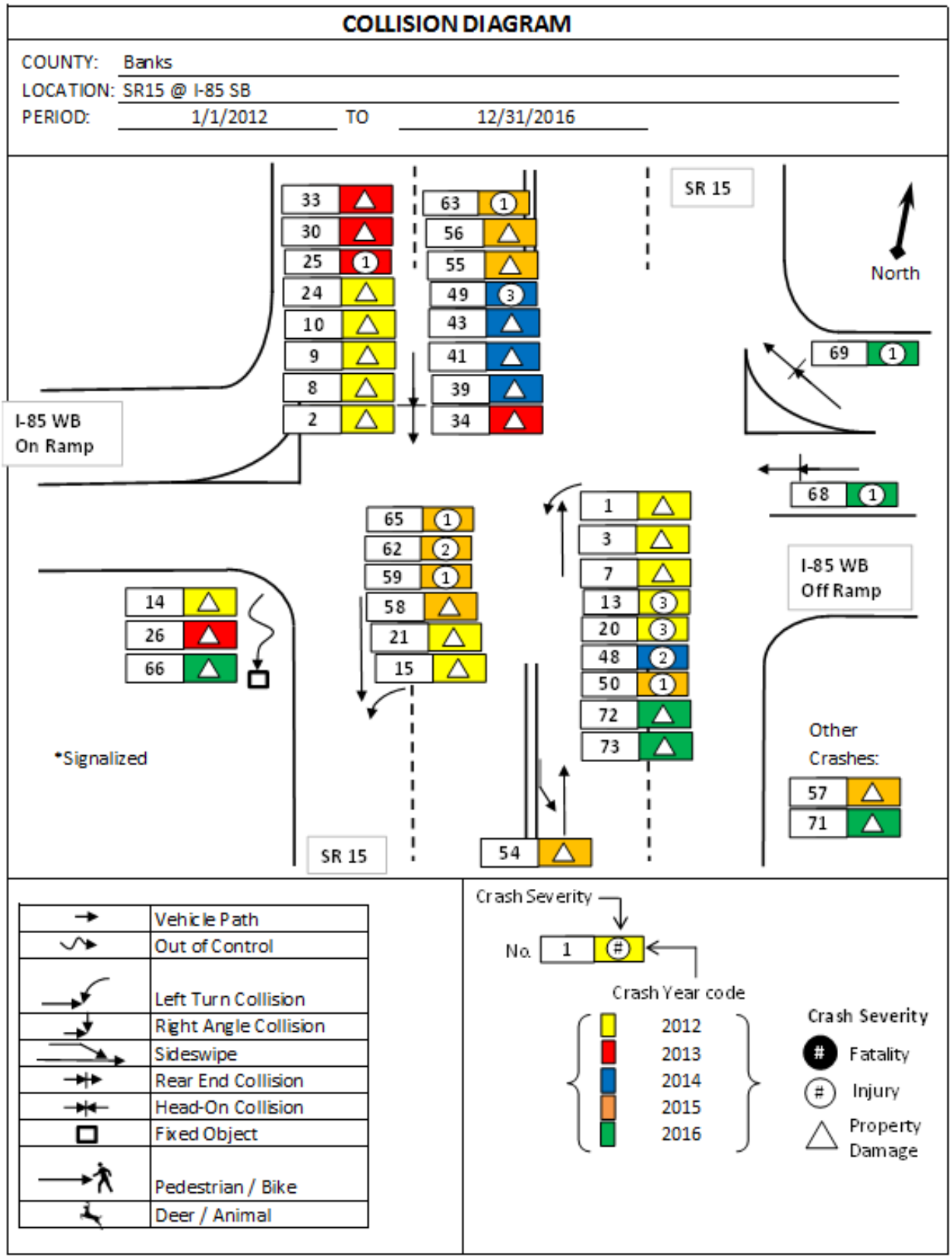
No.	Year	Date	Day	Time	Type	Fatal	Inj.	Light Cond.	Surface	Accident No.
1		1/11/2012	Wed	9:45:00 AM	Angle	0	0	Day	Wet	3975421
2		2/26/2012	Sun	3:40:00 PM	Angle	0	0	Day	Dry	4013546
3		3/22/2012	Thu	10:11:00 PM	Sideswipe	0	0	Night	Dry	4053463
4		4/5/2012	Thu	12:56:00 PM	Angle	0	0	Day	Dry	4109467
5		4/13/2012	Fri	7:19:00 AM	Sideswipe	0	0	Day	Dry	4109469
6		4/15/2012	Sun	2:23:00 PM	Rear End	0	0	Day	Dry	4109470
7		4/21/2012	Sat	11:49:00 AM	Rear End	0	0	Day	Dry	4109477
8		5/9/2012	Wed	12:21:00 PM	Sideswipe	0	0	Day	Wet	4120895
9		6/16/2012	Sat	8:10:00 PM	Sideswipe	0	0	Day	Dry	4148908
10		6/21/2012	Thu	11:41:00 AM	Rear End	0	0	Day	Dry	4148909
11		6/29/2012	Fri	6:33:00 PM	Rear End	0	0	Day	Dry	4148912
12		7/8/2012	Sun	3:20:00 PM	Rear End	0	0	Day	Dry	4181714
13		8/1/2012	Wed	11:45:00 AM	Rear End	0	0	Day	Dry	4164824
14		8/17/2012	Fri	6:16:00 PM	Rear End	0	0	Day	Dry	4216272
15		11/22/2012	Thu	10:03:00 PM	Rear End	0	1	Night	Dry	4272369
16		11/26/2012	Mon	5:30:00 PM	Angle	0	1	Day	Dry	4276037
17		12/16/2012	Sun	2:07:00 PM	Angle	0	1	Day	Wet	4300726
18		12/21/2012	Fri	7:25:00 PM	Angle	0	0	Night	Dry	4306250
19		1/10/2013	Thu	9:21:00 PM	Angle	0	2	Night	Dry	4323032
20		2/1/2013	Fri	7:08:00 PM	Angle	0	2	Night	Dry	4344725
21		2/12/2013	Tue	10:41:00 PM	Sideswipe	0	0	Night	Wet	4355023
22		3/1/2013	Fri	7:55:00 PM	Rear End	0	0	Night	Dry	4371996
23		3/13/2013	Wed	1:50:00 PM	Rear End	0	2	Day	Dry	4380731
24		3/29/2013	Fri	11:17:00 AM	Rear End	0	0	Day	Dry	4400526
25		4/10/2013	Wed	6:30:00 AM	Angle	0	2	Night	Dry	4412193
26		10/31/2013	Thu	3:57:00 PM	Rear End	0	2	Day	Dry	4628148
27		11/22/2013	Fri	4:07:00 PM	Rear End	0	2	Day	Dry	4652503
28		11/24/2013	Sun	1:13:00 PM	Rear End	0	0	Day	Dry	5148273
29		11/26/2013	Tue	10:50:00 PM	Angle	0	0	Night	Wet	4656539
30		12/17/2013	Tue	4:48:00 AM	Angle	0	1	Night	Dry	5148223
31		2/10/2014	Mon	7:32:00 AM	Rear End	0	0	Dawn	Dry	5148388
32		3/10/2014	Mon	2:45:00 PM	Angle	0	2	Day	Dry	4757198
33		3/11/2014	Tue	5:35:00 PM	Rear End	0	0	Day	Dry	4757679
34		3/19/2014	Wed	5:18:00 PM	Sideswipe	0	0	Day	Dry	4769332
35		3/19/2014	Wed	5:48:00 PM	Rear End	0	0	Day	Dry	4769925

CRASH SUMMARY

COUNTY: Banks
LOCATION: SR15 @ I-85 NB
PERIOD: 01/01/12 to 12/31/16

No.	Year	Date	Day	Time	Type	Fatal	Inj.	Light Cond.	Surface	Accident No.
36		3/28/2014	Fri	12:30:00 PM	Rear End	0	1	Day	Wet	4775926
37		5/11/2014	Sun	4:19:00 PM	Rear End	0	0	Day	Dry	5148395
38		6/3/2014	Tue	5:02:00 PM	Rear End	0	0	Day	Dry	5147525
39		8/2/2014	Sat	8:59:00 AM	Rear End	0	0	Day	Dry	5148433
40		8/27/2014	Wed	10:14:00 AM	Sideswipe	0	0	Day	Dry	4952619
41		9/30/2014	Tue	6:10:00 PM	Rear End	0	0	Day	Dry	5002968
42		12/14/2014	Sun	6:07:00 PM	Sideswipe	0	0	Night	Dry	5112888
43		1/5/2015	Mon	1:42:00 PM	Angle	0	1	Day	Dry	5118379
44		1/15/2015	Thu	8:52:00 AM	Rear End	0	0	Day	Dry	5129864
45		3/21/2015	Sat	6:24:00 PM	Rear End	0	1	Day	Dry	5225082
46		3/29/2015	Sun	3:12:00 PM	Angle	0	0	Day	Dry	5235236
47		4/2/2015	Thu	11:35:00 PM	Rear End	0	0	Night	Wet	5245618
48		4/28/2015	Tue	8:07:00 AM	Rear End	0	0	Day	Dry	5270392
49		7/12/2015	Sun	11:31:00 AM	Rear End	0	1	Day	Dry	5354456
50		10/8/2015	Thu	8:53:00 PM	Rear End	0	2	Night	Dry	5463683
51		2/4/2016	Thu	10:29:00 PM	Angle	0	0	Night	Dry	5626825
52		2/15/2016	Mon	2:48:00 PM	Rear End	0	1	Day	Dry	5639965
53		10/17/2016	Mon	4:01:00 PM	Angle	0	0	Day	Dry	5962080
54		12/10/2016	Sat	3:53:00 PM	Rear End	0	3	Day	Dry	6035954
55		12/17/2016	Sat	10:52:00 AM	Rear End	0	0	Day	Dry	6044675

SR-15 & I-85 Southbound Ramp Intersection

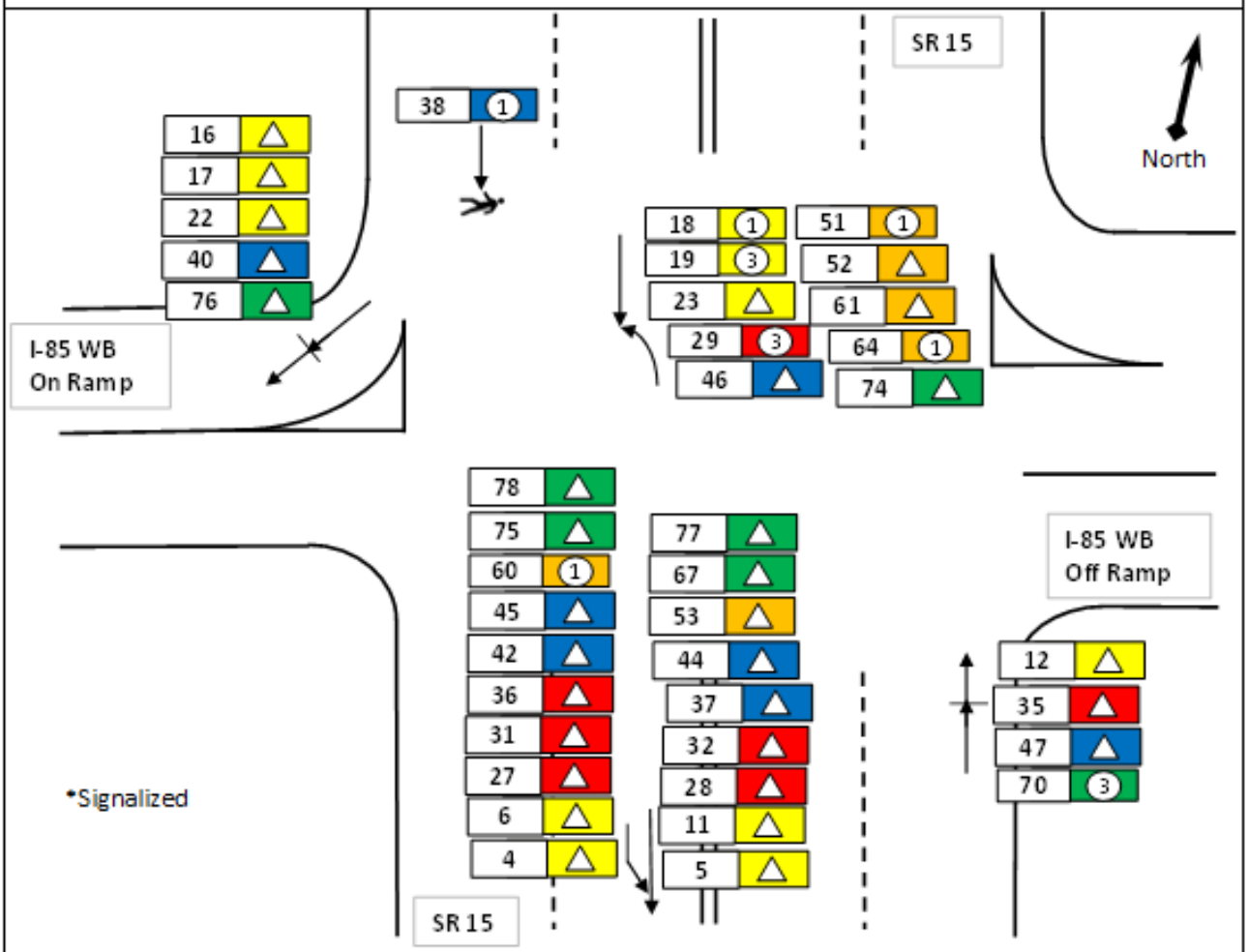


COLLISION DIAGRAM

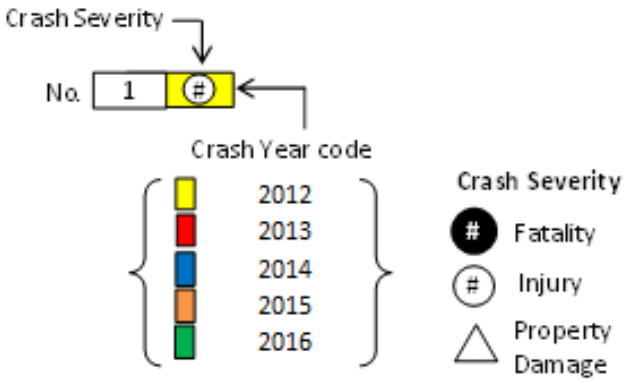
COUNTY: Banks

LOCATION: SR15 @ I-85 SB

PERIOD: 1/1/2012 TO 12/31/2016



→	Vehicle Path
∿→	Out of Control
	Left Turn Collision
	Right Angle Collision
	Sideswipe
→→	Rear End Collision
→←	Head-On Collision
□	Fixed Object
	Pedestrian / Bike
	Deer / Animal



CRASH SUMMARY

COUNTY: Banks

LOCATION: SR15 @ I-85 SB

PERIOD: 01/01/12 to 12/31/16

No.	Year	Date	Day	Time	Type	Fatal	Inj.	Light Cond.	Surface	Accident No.
1		1/7/2012	Sat	4:23:00 PM	Angle	0	0	Day	Dry	3964942
2		2/20/2012	Mon	2:31:00 PM	Rear End	0	0	Day	Dry	4042570
3		3/2/2012	Fri	1:40:00 PM	Angle	0	0	Day	Dry	4020675
4		3/16/2012	Fri	5:19:00 PM	Sideswipe	0	0	Day	Dry	4053449
5		4/1/2012	Sun	12:40:00 PM	Sideswipe	0	0	Day	Dry	4045707
6		4/7/2012	Sat	2:08:00 PM	Sideswipe	0	0	Day	Dry	4109461
7		5/3/2012	Thu	2:33:00 PM	Angle	0	0	Day	Dry	4076358
8		5/24/2012	Thu	2:28:00 PM	Rear End	0	0	Day	Dry	4120903
9		5/28/2012	Mon	10:55:00 AM	Rear End	0	0	Day	Dry	4103757
10		6/10/2012	Sun	5:24:00 PM	Rear End	0	0	Day	Dry	4113247
11		6/27/2012	Wed	6:08:00 AM	Sideswipe	0	0	Dawn	Dry	4148914
12		6/30/2012	Sat	11:40:00 AM	Rear End	0	0	Day	Dry	4148913
13		7/7/2012	Sat	5:16:00 PM	Angle	0	3	Day	Dry	4141267
14		7/10/2012	Tue	8:32:00 PM	Single Veh	0	0	Dusk	Wet	4144940
15		7/15/2012	Sun	4:25:00 PM	Angle	0	0	Day	Dry	4181710
16		8/6/2012	Mon	3:44:00 PM	Rear End	0	0	Day	Dry	4167836
17		8/19/2012	Sun	1:21:00 PM	Rear End	0	0	Day	Dry	4216270
18		10/4/2012	Thu	7:00:00 AM	Angle	0	1	Day	Dry	4224121
19		11/3/2012	Sat	7:10:00 PM	Angle	0	3	Night	Dry	4249474
20		11/16/2012	Fri	6:58:00 PM	Angle	0	3	Night	Dry	4266345
21		11/21/2012	Wed	10:58:00 AM	Angle	0	0	Day	Dry	4272350
22		11/23/2012	Fri	5:57:00 PM	Rear End	0	0	Night	Dry	4273000
23		12/20/2012	Thu	9:18:00 AM	Angle	0	0	Day	Wet	4306041
24		12/23/2012	Sun	4:43:00 PM	Rear End	0	0	Day	Dry	4307378
25		1/15/2013	Tue	11:45:00 AM	Rear End	0	1	Day	Wet	4333488
26		2/8/2013	Fri	11:53:00 PM	Single Veh	0	0	Night	Dry	4352708
27		2/27/2013	Wed	7:45:00 PM	Sideswipe	0	0	Night	Dry	4371685
28		4/11/2013	Thu	2:24:00 PM	Sideswipe	0	0	Day	Dry	4414168
29		4/24/2013	Wed	9:20:00 PM	Angle	0	3	Night	Dry	4425623
30		5/18/2013	Sat	12:04:00 PM	Rear End	0	0	Day	Dry	4451929
31		7/3/2013	Wed	12:02:00 PM	Sideswipe	0	0	Day	Wet	4495839
32		7/30/2013	Tue	2:40:00 PM	Sideswipe	0	0	Day	Dry	4525416
33		9/8/2013	Sun	12:45:00 PM	Rear End	0	0	Day	Dry	4565463
34		9/24/2013	Tue	4:21:00 PM	Rear End	0	0	Day	Dry	4581039
35		9/25/2013	Wed	7:40:00 PM	Rear End	0	0	Night	Wet	4583332

CRASH SUMMARY

COUNTY: Banks
LOCATION: SR15 @ I-85 SB
PERIOD: 01/01/12 to 12/31/16

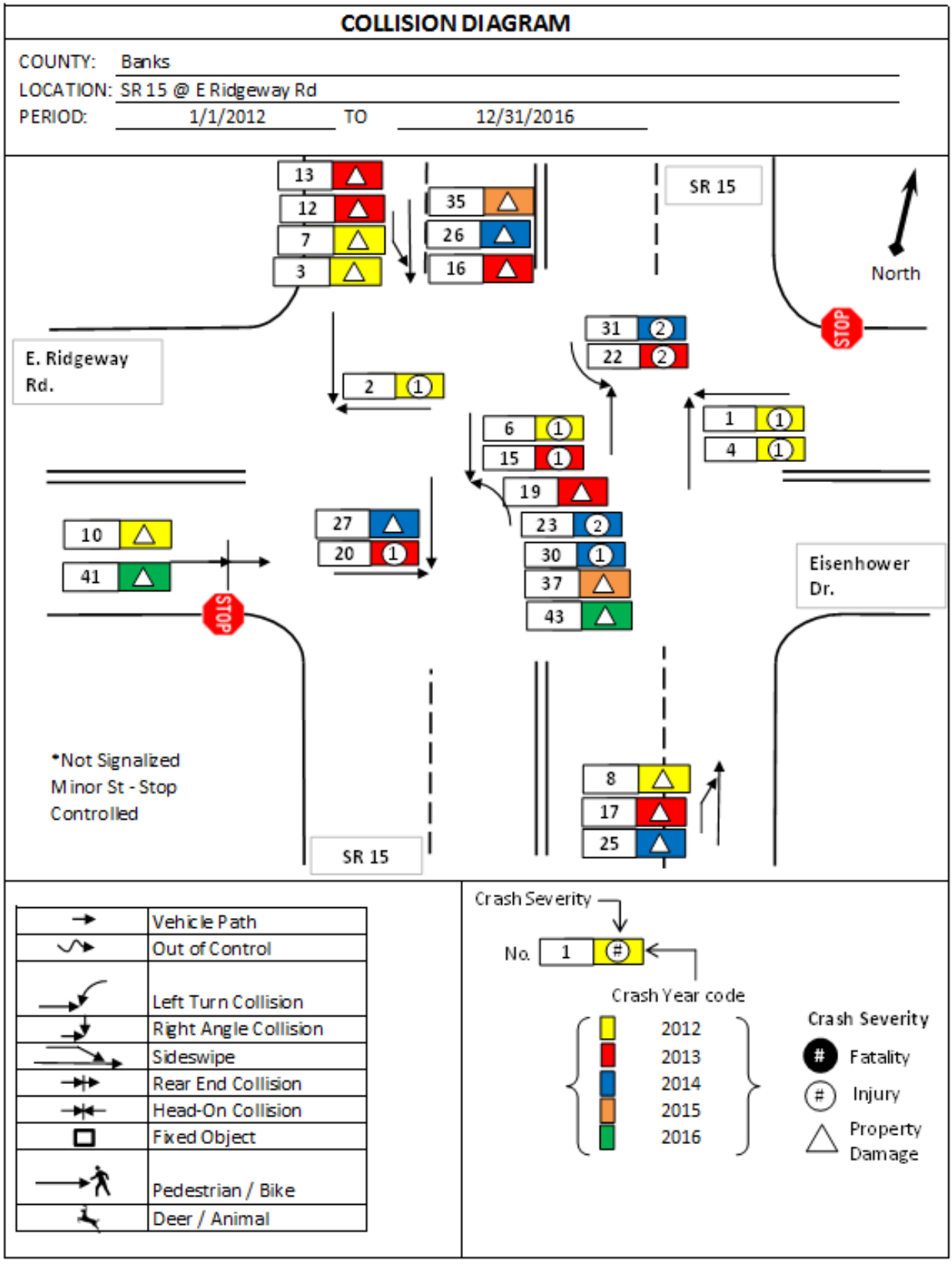
No.	Year	Date	Day	Time	Type	Fatal	Inj.	Light Cond.	Surface	Accident No.
36		10/15/2013	Tue	6:33:00 PM	Sideswipe	0	0	Dusk	Dry	4611680
37		2/11/2014	Tue	6:55:00 PM	Sideswipe	0	0	Night	Wet	4731998
38		2/15/2014	Sat	2:22:00 PM	Pedestrian	0	1	Day	Dry	4734886
39		3/13/2014	Thu	6:57:00 AM	Rear End	0	0	Night	Dry	5148456
40		4/20/2014	Sun	5:49:00 PM	Rear End	0	0	Day	Dry	5148393
41		5/17/2014	Sat	10:29:00 AM	Rear End	0	0	Day	Dry	4850932
42		6/13/2014	Fri	2:15:00 PM	Sideswipe	0	0	Day	Dry	5148411
43		6/26/2014	Thu	5:31:00 PM	Rear End	0	0	Day	Dry	4891239
44		7/1/2014	Tue	11:10:00 AM	Sideswipe	0	0	Day	Dry	5148417
45		7/10/2014	Thu	3:51:00 PM	Sideswipe	0	0	Day	Dry	5148421
46		7/11/2014	Fri	2:07:00 PM	Angle	0	0	Day	Dry	4906470
47		7/11/2014	Fri	10:10:00 PM	Rear End	0	0	Night	Wet	4906689
48		7/22/2014	Tue	5:52:00 PM	Angle	0	2	Day	Dry	4915890
49		12/27/2014	Sat	3:56:00 PM	Rear End	0	3	Day	Dry	5109973
50		1/7/2015	Wed	1:34:00 PM	Angle	0	1	Day	Dry	5122112
51		5/2/2015	Sat	10:31:00 AM	Angle	0	1	Day	Dry	5274454
52		5/29/2015	Fri	3:07:00 PM	Angle	0	0	Day	Dry	5307748
53		6/5/2015	Fri	3:18:00 PM	Sideswipe	0	0	Day	Dry	5315470
54		6/21/2015	Sun	2:10:00 PM	Sideswipe	0	0	Day	Dry	5335789
55		6/27/2015	Sat	11:11:00 AM	Rear End	0	0	Day	Dry	5338441
56		7/26/2015	Sun	10:23:00 AM	Rear End	0	0	Day	Dry	5371976
57		8/10/2015	Mon	2:14:00 PM	Single Veh	0	0	Day	Dry	5386031
58		10/13/2015	Tue	2:11:00 PM	Angle	0	0	Day	Dry	5466997
59		10/25/2015	Sun	2:27:00 PM	Angle	0	1	Day	Dry	5484893
60		10/31/2015	Sat	12:32:00 PM	Sideswipe	0	1	Day	Dry	5492248
61		11/27/2015	Fri	2:28:00 PM	Angle	0	0	Day	Dry	5537146
62		12/2/2015	Wed	6:11:00 PM	Angle	0	2	Night	Dry	5537550
63		12/14/2015	Mon	4:07:00 PM	Rear End	0	1	Day	Dry	5553489
64		12/20/2015	Sun	9:39:00 PM	Angle	0	1	Night	Dry	5565669
65		12/23/2015	Wed	6:23:00 AM	Angle	0	1	Night	Wet	5563906
66		1/15/2016	Fri	4:51:00 PM	Single Veh	0	0	Day	Dry	5605089
67		3/13/2016	Sun	3:03:00 PM	Sideswipe	0	0	Day	Dry	5674833
68		4/21/2016	Thu	10:02:00 PM	Rear End	0	1	Night	Dry	5725961
69		5/14/2016	Sat	9:25:00 AM	Rear End	0	1	Day	Dry	5756312
70		7/5/2016	Tue	5:22:00 PM	Rear End	0	3	Day	Dry	5830892

CRASH SUMMARY

COUNTY: Banks
LOCATION: SR15 @ I-85 SB
PERIOD: 01/01/12 to 12/31/16

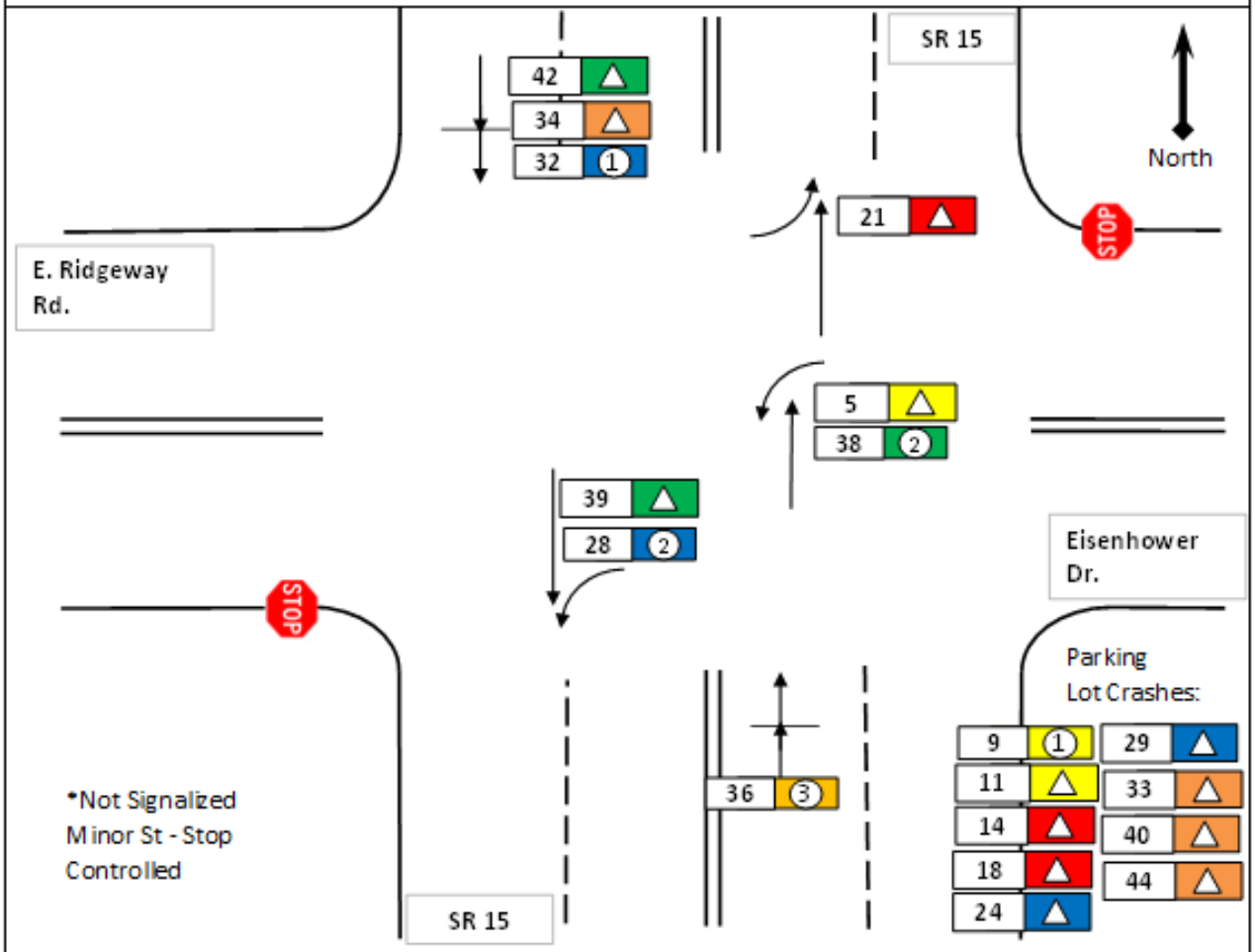
No.	Year	Date	Day	Time	Type	Fatal	Inj.	Light Cond.	Surface	Accident No.
71		9/17/2016	Sat	1:31:00 PM	Angle	0	0	Day	Dry	5922958
72		10/11/2016	Tue	12:20:00 PM	Angle	0	0	Day	Dry	5954645
73		10/15/2016	Sat	10:55:00 AM	Angle	0	0	Day	Dry	5959295
74		11/7/2016	Mon	3:05:00 PM	Angle	0	0	Day	Dry	5991895
75		11/25/2016	Fri	3:47:00 PM	Sideswipe	0	0	Day	Dry	6016092
76		12/11/2016	Sun	5:35:00 PM	Rear End	0	0	Dusk	Dry	6037566
77		12/12/2016	Mon	6:37:00 PM	Sideswipe	0	0	Night	Dry	6038534
78		12/17/2016	Sat	1:56:00 PM	Sideswipe	0	0	Day	Wet	6044649

SR-15 & Eisenhower Drive/E. Ridgeway Rd Intersection

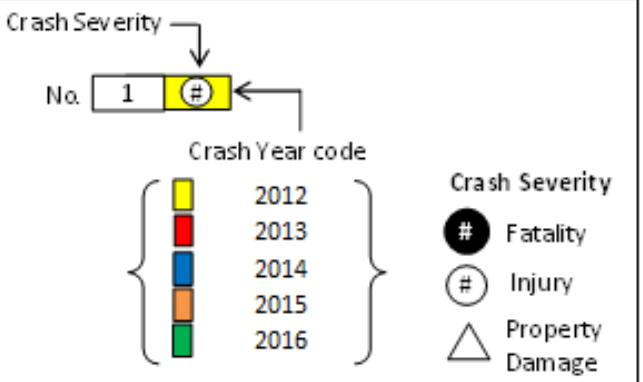


COLLISION DIAGRAM

COUNTY: Banks
LOCATION: SR 15 @ E Ridgeway Rd
PERIOD: 1/1/2012 TO 12/31/2016



→	Vehicle Path
↝	Out of Control
↙	Left Turn Collision
↓	Right Angle Collision
↘	Sideswipe
→→	Rear End Collision
→←	Head-On Collision
□	Fixed Object
→ 🚶	Pedestrian / Bike
🦌	Deer / Animal



CRASH SUMMARY

COUNTY: Banks

LOCATION: SR 15 @ E Ridgeway Rd

PERIOD: 01/01/12 to 12/31/16

No.	Year	Date	Day	Time	Type	Fatal	Inj.	Light Cond.	Surface	Accident No.
1		1/12/2012	Thu	6:20:00 PM	Angle	0	1	Night	Wet	3975416
2		1/15/2012	Sun	4:24:00 PM	Angle	0	1	Day	Dry	3975197
3		7/4/2012	Wed	11:36:00 AM	Sideswipe	0	0	Day	Dry	4181720
4		7/11/2012	Wed	2:40:00 PM	Single Veh	0	1	Day	Dry	4144897
5		7/21/2012	Sat	3:30:00 PM	Angle	0	0	Day	Dry	4181701
6		8/11/2012	Sat	1:25:00 PM	Angle	0	1	Day	Dry	4172016
7		11/4/2012	Sun	8:39:00 PM	Sideswipe	0	0	Night	Dry	4249435
8		11/15/2012	Thu	5:50:00 PM	Angle	0	0	Night	Dry	4266493
9		11/26/2012	Mon	12:03:00 PM	Rear End	0	1	Day	Dry	4274146
10		12/26/2012	Wed	12:00:00 AM	Rear End	0	0	Day	Dry	4310001
11		12/28/2012	Fri	12:53:00 PM	Sideswipe	0	0	Day	Dry	4311950
12		1/20/2013	Sun	5:00:00 PM	Sideswipe	0	0	Day	Dry	4333773
13		3/27/2013	Wed	6:36:00 PM	Sideswipe	0	0	Day	Dry	4400903
14		4/1/2013	Mon	7:15:00 AM	Angle	0	0	Day	Dry	4400203
15		6/5/2013	Wed	9:29:00 PM	Angle	0	1	Night	Wet	4471148
16		7/23/2013	Tue	4:02:00 PM	Sideswipe	0	0	Day	Dry	4518824
17		9/4/2013	Wed	12:40:00 PM	Sideswipe	0	0	Day	Dry	4561544
18		10/1/2013	Tue	1:15:00 PM	Angle	0	0	Day	Dry	4589388
19		10/2/2013	Wed	4:33:00 PM	Angle	0	0	Day	Dry	4598498
20		10/11/2013	Fri	5:29:00 PM	Angle	0	1	Day	Dry	5148293
21		12/22/2013	Sun	3:42:00 PM	Angle	0	0	Day	Wet	5148229
22		12/31/2013	Tue	12:05:00 PM	Angle	0	0	Day	Dry	4693970
23		2/27/2014	Thu	12:15:00 PM	Angle	0	2	Day	Dry	4746205
24		3/1/2014	Sat	8:28:00 PM	Rear End	0	0	Night	Dry	5148451
25		3/3/2014	Mon	9:55:00 AM	Sideswipe	0	0	Day	Wet	4748994
26		6/18/2014	Wed	2:55:00 PM	Sideswipe	0	0	Day	Dry	5148414
27		6/21/2014	Sat	12:06:00 PM	Angle	0	0	Day	Dry	4885574
28		9/21/2014	Sun	2:09:00 PM	Angle	0	2	Day	Dry	4987323
29		9/30/2014	Tue	6:33:00 PM	Rear End	0	0	Day	Dry	5002974
30		10/25/2014	Sat	2:07:00 PM	Angle	0	1	Day	Dry	5029916
31		11/19/2014	Wed	6:30:00 PM	Angle	0	2	Night	Dry	5060321
32		12/22/2014	Mon	3:43:00 PM	Rear End	0	1	Day	Wet	5111105
33		3/27/2015	Fri	4:15:00 PM	Rear End	0	0	Day	Dry	5233485
34		6/29/2015	Mon	2:29:00 PM	Rear End	0	0	Day	Dry	5340583
35		7/31/2015	Fri	2:05:00 PM	Sideswipe	0	0	Day	Dry	5376523

CRASH SUMMARY

COUNTY: Banks
LOCATION: SR 15 @ E Ridgeway Rd
PERIOD: 01/01/12 to 12/31/16

No.	Year	Date	Day	Time	Type	Fatal	Inj.	Light Cond.	Surface	Accident No.
36		8/12/2015	Wed	8:43:00 PM	Rear End	0	3	Night	Dry	5389185
37		11/29/2015	Sun	5:04:00 PM	Angle	0	0	Day	Dry	5537452
38		4/22/2016	Fri	8:36:00 PM	Angle	0	2	Night	Dry	5731425
39		5/1/2016	Sun	3:02:00 PM	Angle	0	0	Day	Dry	5738088
40		5/6/2016	Fri	8:55:00 AM	Angle	0	0	Day	Dry	5745608
41		5/25/2016	Wed	2:16:00 PM	Rear End	0	0	Day	Dry	5771794
42		8/21/2016	Sun	1:38:00 PM	Rear End	0	0	Day	Dry	5889092
43		9/3/2016	Sat	2:00:00 PM	Angle	0	0	Day	Dry	5905606
44		12/26/2016	Mon	10:15:00 AM	Rear End	0	0	Day	Dry	6055466
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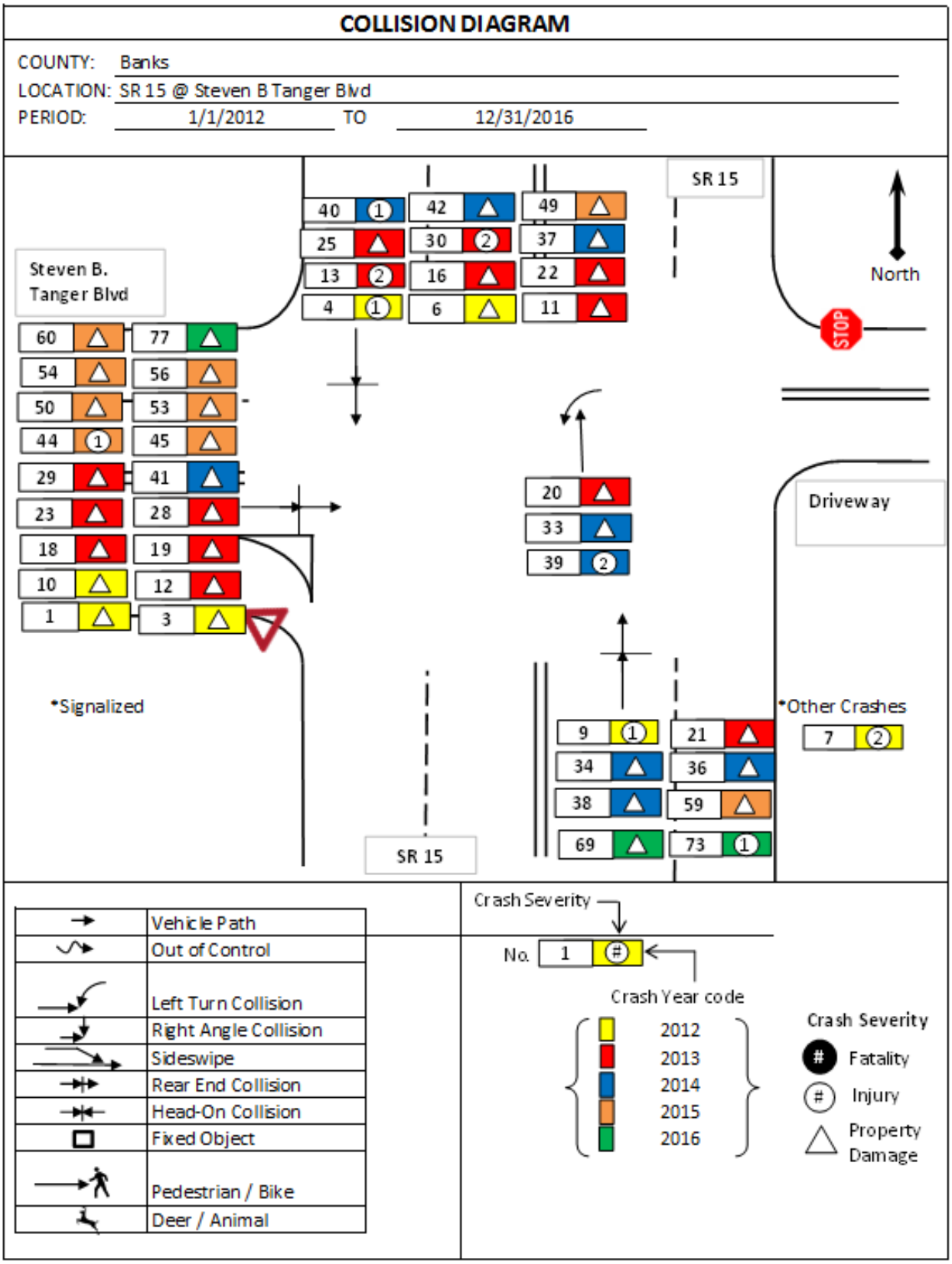
SR-15 & Steven B. Tanger Boulevard Intersection

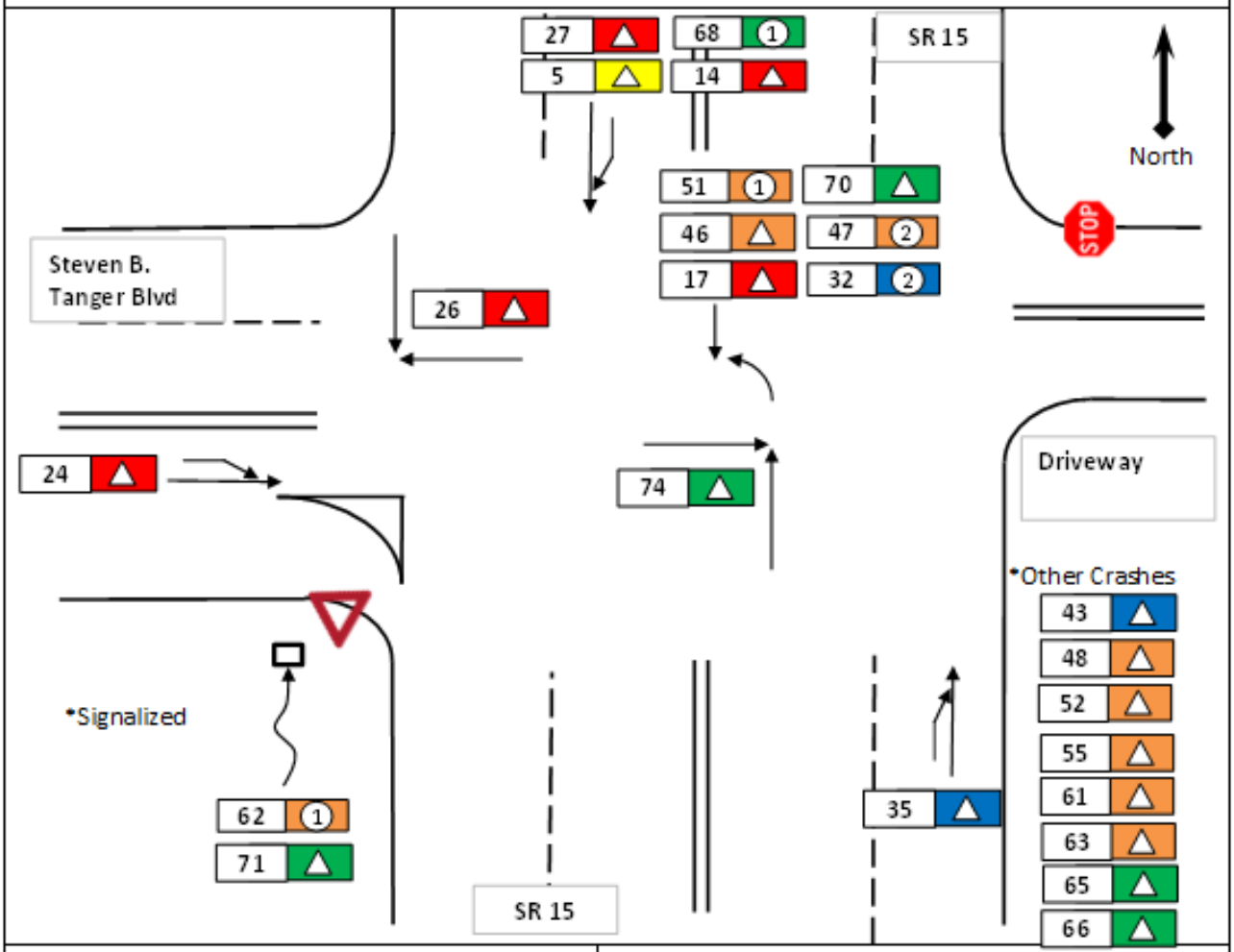


COLLISION DIAGRAM

COUNTY: Banks

LOCATION: SR 15 @ Steven B Tanger Blvd

PERIOD: 1/1/2012 TO 12/31/2016



→	Vehicle Path
∿→	Out of Control
	Left Turn Collision
	Right Angle Collision
	Sideswipe
→|←	Rear End Collision
→←|	Head-On Collision
□	Fixed Object
	Pedestrian / Bike
	Deer / Animal

Crash Severity

No. 1 (#)

Crash Year code

2012
2013
2014
2015
2016

Crash Severity

● # Fatality

(#) Injury

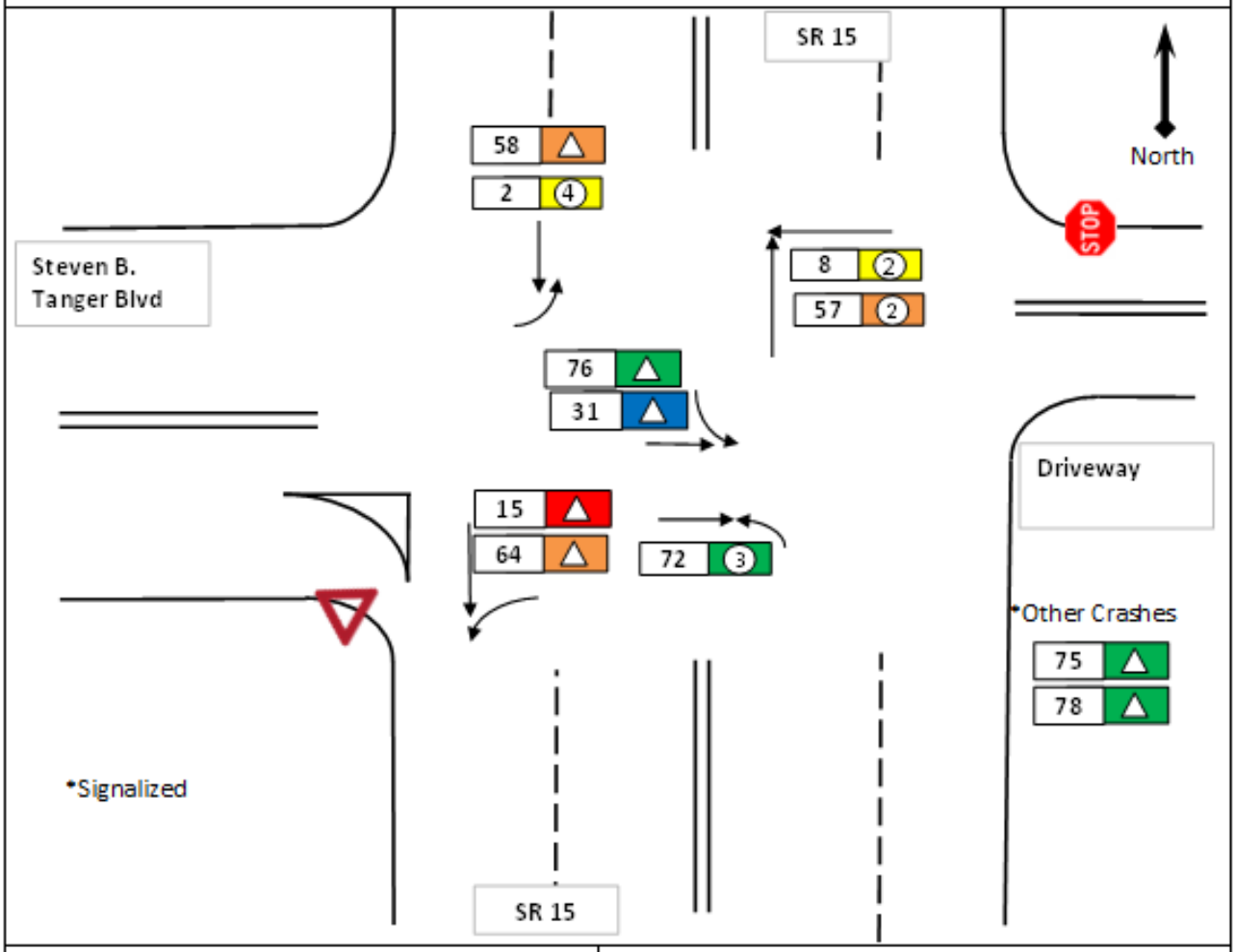
△ Property Damage

COLLISION DIAGRAM

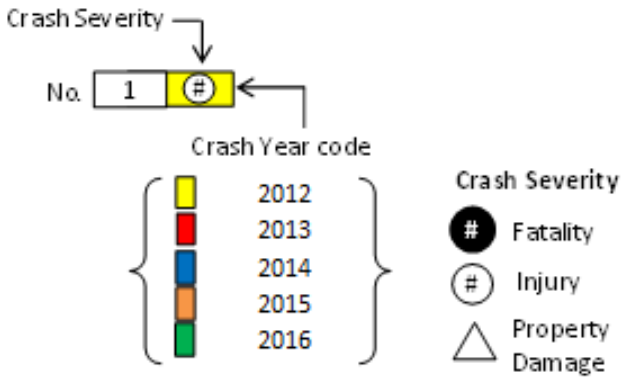
COUNTY: Banks

LOCATION: SR 15 @ Steven B Tanger Blvd

PERIOD: 1/1/2012 TO 12/31/2016



→	Vehicle Path
∿→	Out of Control
	Left Turn Collision
	Right Angle Collision
	Sideswipe
	Rear End Collision
	Head-On Collision
□	Fixed Object
	Pedestrian / Bike
	Deer / Animal



CRASH SUMMARY

COUNTY: Banks

LOCATION: SR 15 @ Steven B Tanger Blvd

PERIOD: 01/01/12 to 12/31/16

No.	Year	Date	Day	Time	Type	Fatal	Inj.	Light Cond.	Surface	Accident No.
1		2/3/2012	Fri	9:26:00 PM	Rear End	0	0	Night	Dry	4042571
2		2/11/2012	Sat	10:36:00 AM	Head On	0	4	Day	Dry	4002685
3		2/16/2012	Thu	7:27:00 PM	Rear End	0	0	Night	Wet	4042562
4		4/7/2012	Sat	6:57:00 PM	Rear End	0	1	Day	Dry	4052372
5		6/8/2012	Fri	6:27:00 PM	Sideswipe	0	0	Day	Dry	4148902
6		6/24/2012	Sun	4:33:00 PM	Rear End	0	0	Day	Dry	4148911
7		7/21/2012	Sat	1:54:00 PM	Angle	0	2	Day	Dry	4159262
8		11/17/2012	Sat	7:00:00 PM	Angle	0	3	Night	Dry	4270372
9		11/18/2012	Sun	2:49:00 PM	Rear End	0	1	Day	Dry	4266263
10		11/23/2012	Fri	6:00:00 PM	Rear End	0	0	Night	Dry	4273447
11		1/9/2013	Wed	3:45:00 PM	Rear End	0	0	Day	Dry	5148497
12		1/24/2013	Thu	4:38:00 PM	Rear End	0	0	Day	Dry	4337926
13		2/10/2013	Sun	3:46:00 PM	Rear End	0	2	Day	Dry	5148502
14		3/29/2013	Fri	12:33:00 PM	Sideswipe	0	0	Day	Dry	4400503
15		4/5/2013	Fri	1:22:00 PM	Angle	0	0	Day	Dry	4407339
16		4/17/2013	Wed	7:15:00 PM	Rear End	0	0	Day	Wet	5148465
17		5/9/2013	Thu	6:01:00 PM	Sideswipe	0	0	Day	Dry	4441063
18		6/2/2013	Sun	7:20:00 PM	Rear End	0	0	Day	Wet	4469048
19		6/27/2013	Thu	2:35:00 PM	Rear End	0	0	Day	Dry	5157323
20		7/14/2013	Sun	7:19:00 AM	Angle	0	0	Day	Dry	5147515
21		7/20/2013	Sat	11:03:00 AM	Rear End	0	0	Day	Dry	5148377
22		7/23/2013	Tue	4:39:00 PM	Rear End	0	0	Day	Dry	4521057
23		8/2/2013	Fri	3:55:00 PM	Rear End	0	0	Day	Dry	4563047
24		8/29/2013	Thu	1:42:00 PM	Sideswipe	0	0	Day	Dry	5148315
25		9/7/2013	Sat	1:48:00 PM	Rear End	0	0	Day	Dry	5148287
26		11/25/2013	Mon	7:45:00 AM	Angle	0	0	Day	Dry	4654561
27		11/25/2013	Mon	8:05:00 PM	Sideswipe	0	0	Night	Wet	5148514
28		12/6/2013	Fri	7:35:00 PM	Rear End	0	0	Night	Wet	5148274
29		12/17/2013	Tue	5:49:00 PM	Rear End	0	0	Night	Dry	4681141
30		12/19/2013	Thu	7:21:00 PM	Rear End	0	2	Night	Dry	4682631
31		3/24/2014	Mon	7:23:00 PM	Angle	0	0	Day	Dry	4778603
32		4/2/2014	Wed	12:46:00 PM	Sideswipe	0	2	Day	Dry	4780461
33		5/24/2014	Sat	2:11:00 PM	Angle	0	0	Day	Dry	5148402
34		6/12/2014	Thu	6:57:00 AM	Rear End	0	0	Day	Dry	5148410
35		6/29/2014	Sun	1:54:00 PM	Sideswipe	0	0	Day	Dry	4894512

CRASH SUMMARY

COUNTY: Banks
LOCATION: SR 15 @ Steven B Tanger Blvd
PERIOD: 01/01/12 to 12/31/16

No.	Year	Date	Day	Time	Type	Fatal	Inj.	Light Cond.	Surface	Accident No.
36		7/15/2014	Tue	3:07:00 PM	Rear End	0	0	Day	Dry	5147530
37		8/2/2014	Sat	11:18:00 AM	Rear End	0	0	Day	Dry	5148432
38		8/8/2014	Fri	2:32:00 PM	Rear End	0	0	Day	Wet	5148436
39		9/19/2014	Fri	4:22:00 PM	Angle	0	2	Day	Dry	4986340
40		9/20/2014	Sat	8:36:00 PM	Rear End	0	1	Night	Dry	4995166
41		10/15/2014	Wed	9:09:00 AM	Rear End	0	0	Day	Dry	5018556
42		11/28/2014	Fri	12:41:00 PM	Rear End	0	0	Day	Dry	5066852
43		11/28/2014	Fri	1:12:00 PM	Rear End	0	0	Day	Dry	5067141
44		1/6/2015	Tue	6:00:00 PM	Rear End	0	1	Night	Dry	5120701
45		1/16/2015	Fri	12:20:00 PM	Rear End	0	0	Day	Dry	5131643
46		1/23/2015	Fri	10:40:00 PM	Angle	0	0	Night	Wet	5140476
47		1/24/2015	Sat	2:33:00 PM	Angle	0	2	Day	Dry	5139369
48		1/31/2015	Sat	10:43:00 AM	Rear End	0	0	Day	Dry	5155000
49		2/6/2015	Fri	10:38:00 AM	Rear End	0	0	Day	Dry	5169207
50		2/14/2015	Sat	4:28:00 PM	Rear End	0	0	Day	Dry	5177190
51		2/20/2015	Fri	9:15:00 PM	Head On	0	1	Night	Dry	5191877
52		2/24/2015	Tue	4:28:00 AM	#N/A	0	0	#N/A	0	5236728
53		2/25/2015	Wed	9:42:00 AM	Rear End	0	0	Day	Dry	5197662
54		3/4/2015	Wed	1:17:00 PM	Rear End	0	0	Day	Dry	5205498
55		3/27/2015	Fri	5:05:00 PM	Angle	0	0	Day	Dry	5233486
56		3/29/2015	Sun	4:52:00 PM	Rear End	0	0	Day	Dry	5235231
57		8/19/2015	Wed	11:09:00 AM	Angle	0	2	Day	Dry	5399635
58		8/19/2015	Wed	6:59:00 PM	Angle	0	0	Day	Wet	5396880
59		10/18/2015	Sun	11:50:00 AM	Rear End	0	0	Day	Dry	5474416
60		11/6/2015	Fri	7:58:00 PM	Rear End	0	0	Night	Dry	5501755
61		11/13/2015	Fri	12:00:00 AM	Rear End	0	0	Day	Dry	5510324
62		11/15/2015	Sun	4:12:00 PM	Single Veh	0	1	Day	Dry	5510969
63		12/6/2015	Sun	2:24:00 PM	Rear End	0	0	Day	Dry	5541805
64		12/24/2015	Thu	12:41:00 PM	Angle	0	0	Day	Wet	5575713
65		1/15/2016	Fri	7:20:00 AM	Rear End	0	0	Day	Wet	5599920
66		2/5/2016	Fri	7:10:00 PM	Sideswipe	0	0	Night	Dry	5628994
67		4/2/2016	Sat	3:44:00 PM	Angle	0	0	Day	Dry	5706114
68		4/2/2016	Sat	5:02:00 PM	Sideswipe	0	1	Day	Dry	5706101
69		4/4/2016	Mon	4:34:00 PM	Rear End	0	0	Day	Dry	5705736
70		4/16/2016	Sat	8:35:00 PM	Angle	0	0	Night	Dry	5722738

CRASH SUMMARY

COUNTY: Banks
LOCATION: SR 15 @ Steven B Tanger Blvd
PERIOD: 01/01/12 to 12/31/16

No.	Year	Date	Day	Time	Type	Fatal	Inj.	Light Cond.	Surface	Accident No.
71		4/17/2016	Sun	4:50:00 PM	Single Veh	0	0	Day	Dry	5717358
72		6/4/2016	Sat	12:46:00 PM	Head On	0	3	Day	Dry	5783922
73		6/14/2016	Tue	3:28:00 PM	Rear End	0	1	Day	Dry	5831614
74		7/3/2016	Sun	6:42:00 PM	Angle	0	0	Day	Dry	5835243
75		8/1/2016	Mon	9:00:00 PM	Single Veh	0	0	Night	Dry	5860748
76		8/12/2016	Fri	3:08:00 PM	Angle	0	0	Day	Dry	5875628
77		9/26/2016	Mon	6:38:00 PM	Rear End	0	0	Dusk	Dry	5939283
78		12/5/2016	Mon	12:11:00 PM	Rear End	0	0	Day	Dry	6029467
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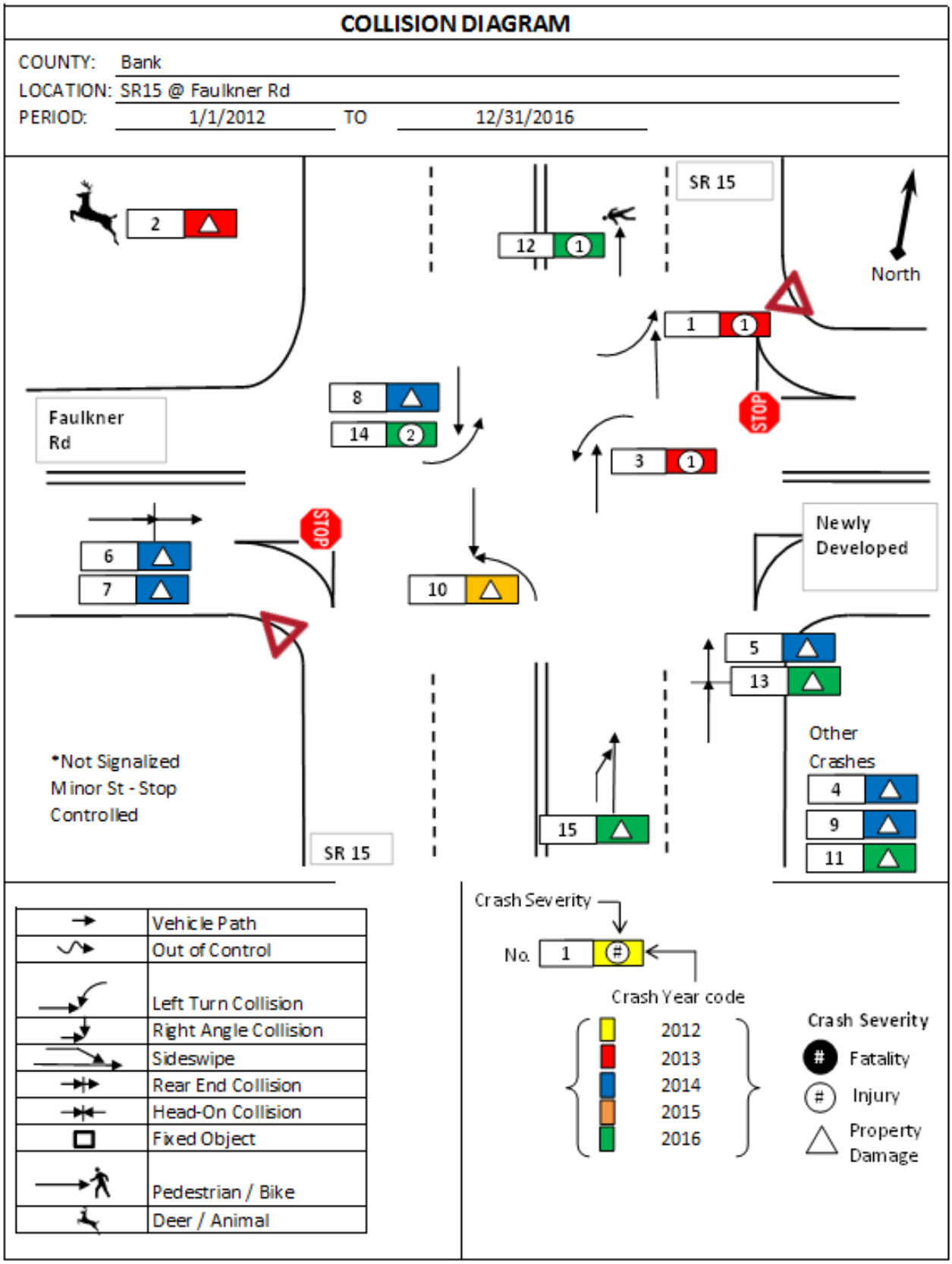
SR-15 & Faulkner Road Intersection



CRASH SUMMARY

COUNTY: Bank

LOCATION: SR15 @ Faulkner Rd

PERIOD: 01/01/12 to 12/31/16

No.	Year	Date	Day	Time	Type	Fatal	Inj.	Light Cond.	Surface	Accident No.
1		6/19/2013	Wed	5:02:00 PM	Angle	0	1	Day	Dry	4482506
2		11/17/2013	Sun	6:04:00 AM	Deer	0	0	Night	Dry	5148267
3		12/15/2013	Sun	9:58:00 AM	Angle	0	1	Day	Dry	4675362
4		1/5/2014	Sun	5:43:00 PM	Rear End	0	0	Night	Dry	4696173
5		2/7/2014	Fri	10:32:00 AM	Rear End	0	0	Day	Dry	4725650
6		4/2/2014	Wed	6:08:00 PM	Rear End	0	0	Day	Dry	4780471
7		6/14/2014	Sat	11:56:00 AM	Rear End	0	0	Day	Dry	5147527
8		8/8/2014	Fri	5:17:00 PM	Angle	0	0	Day	Wet	4935145
9		12/13/2014	Sat	12:21:00 PM	Angle	0	0	Day	Dry	5113053
10		2/23/2015	Mon	7:15:00 AM	Angle	0	0	Dawn	Wet	5194144
11		7/16/2016	Sat	3:09:00 PM	Angle	0	0	Day	Dry	5838030
12		7/27/2016	Wed	2:17:00 AM	Pedestrian	0	1	Night	Dry	5851977
13		9/18/2016	Sun	3:58:00 PM	Rear End	0	0	Day	Wet	5926444
14		9/19/2016	Mon	12:25:00 PM	Angle	0	2	Day	Dry	5931978
15		10/22/2016	Sat	9:41:00 AM	Sideswipe	0	0	Day	Dry	5969342
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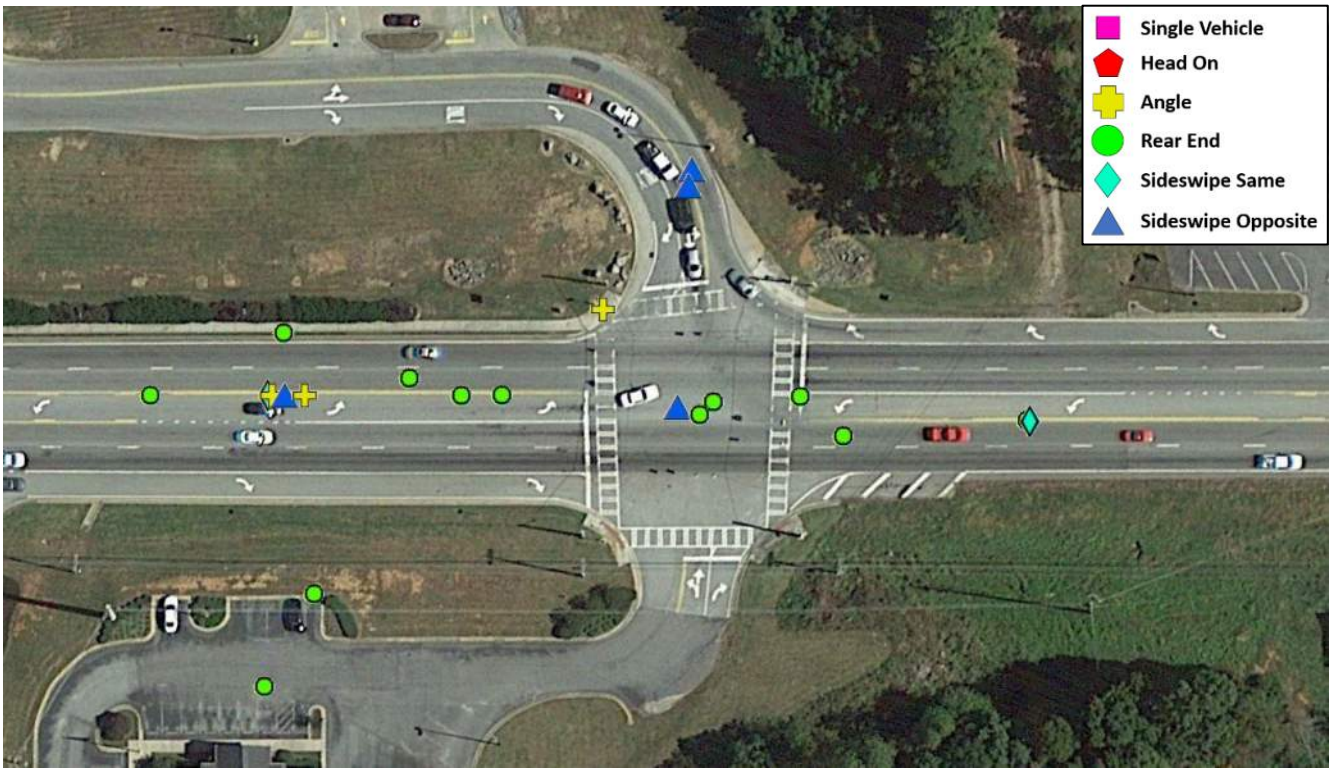
Appendix L: Crash Maps

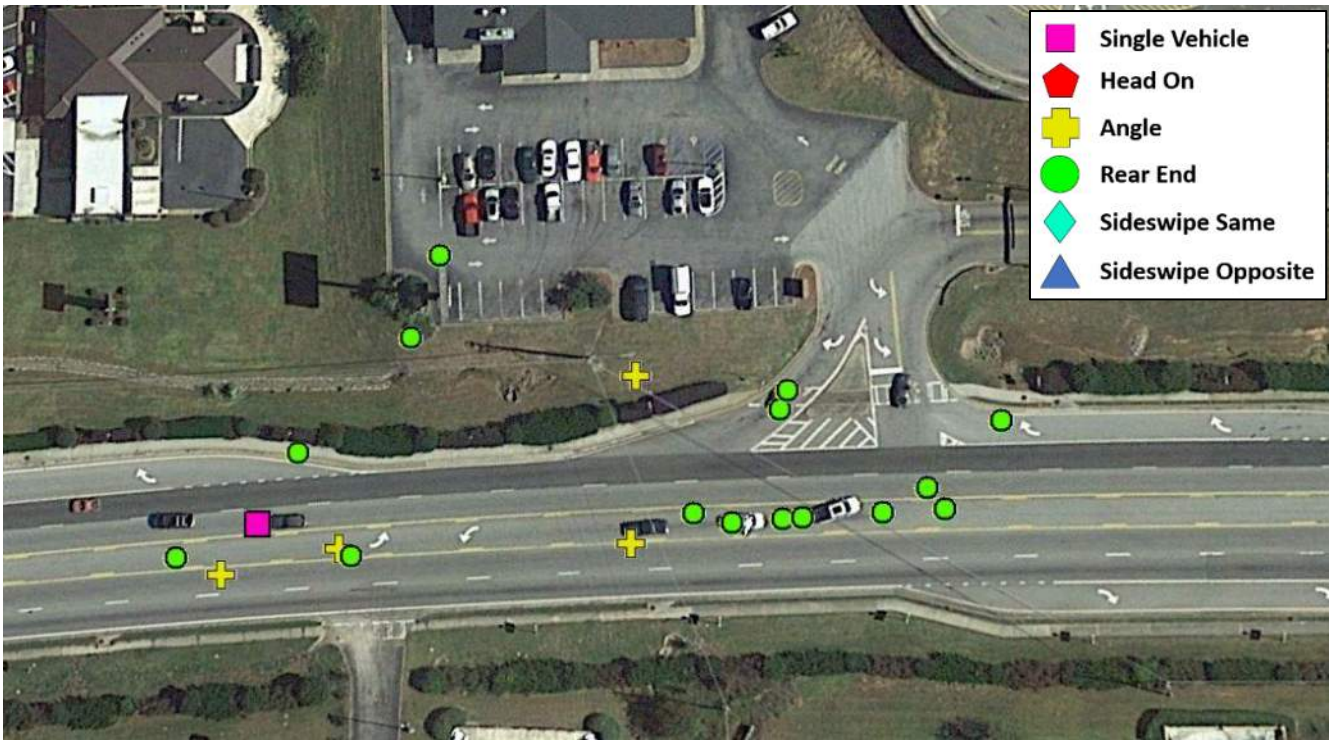
Funapolis Family Fun Center to Dallas Drive Roadway Segment

SR 15 & Walmart/Dallas Drive Intersection

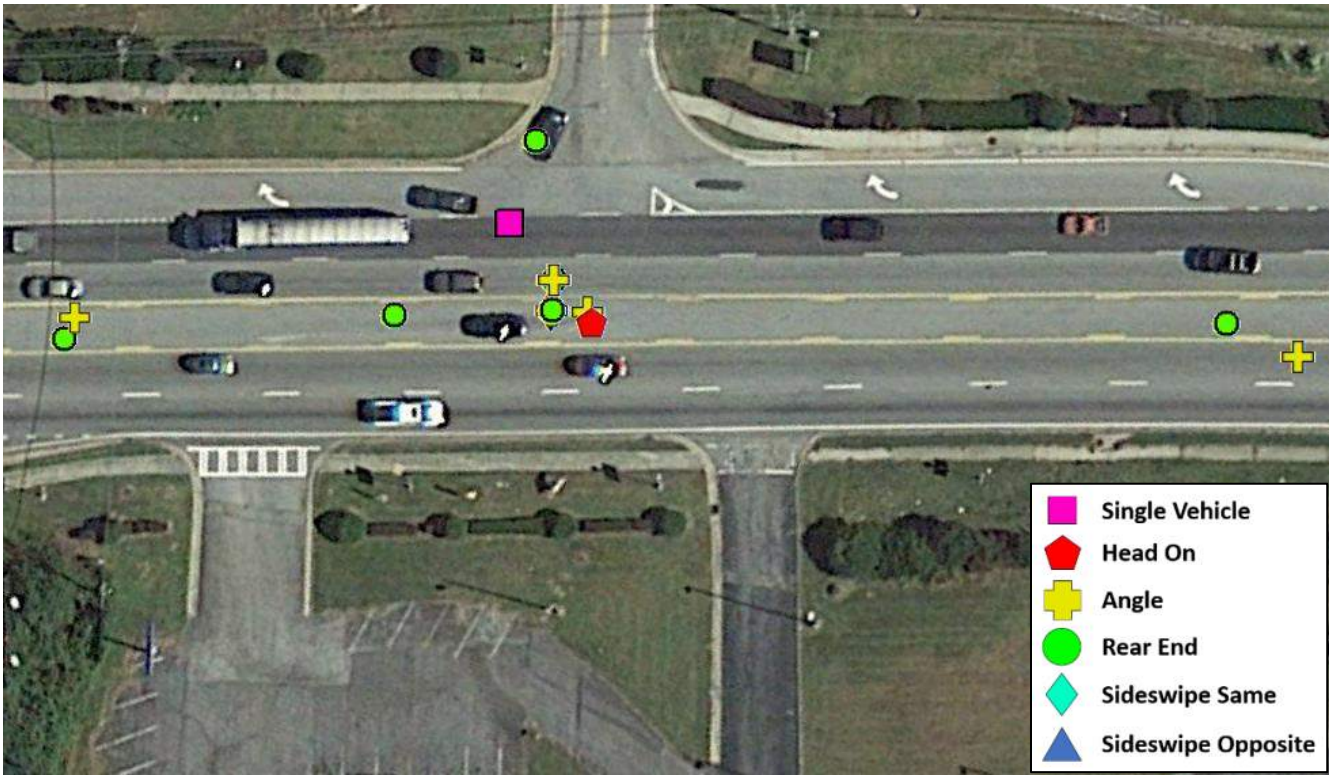


Dallas Drive to Sonny's BBQ Roadway Segment

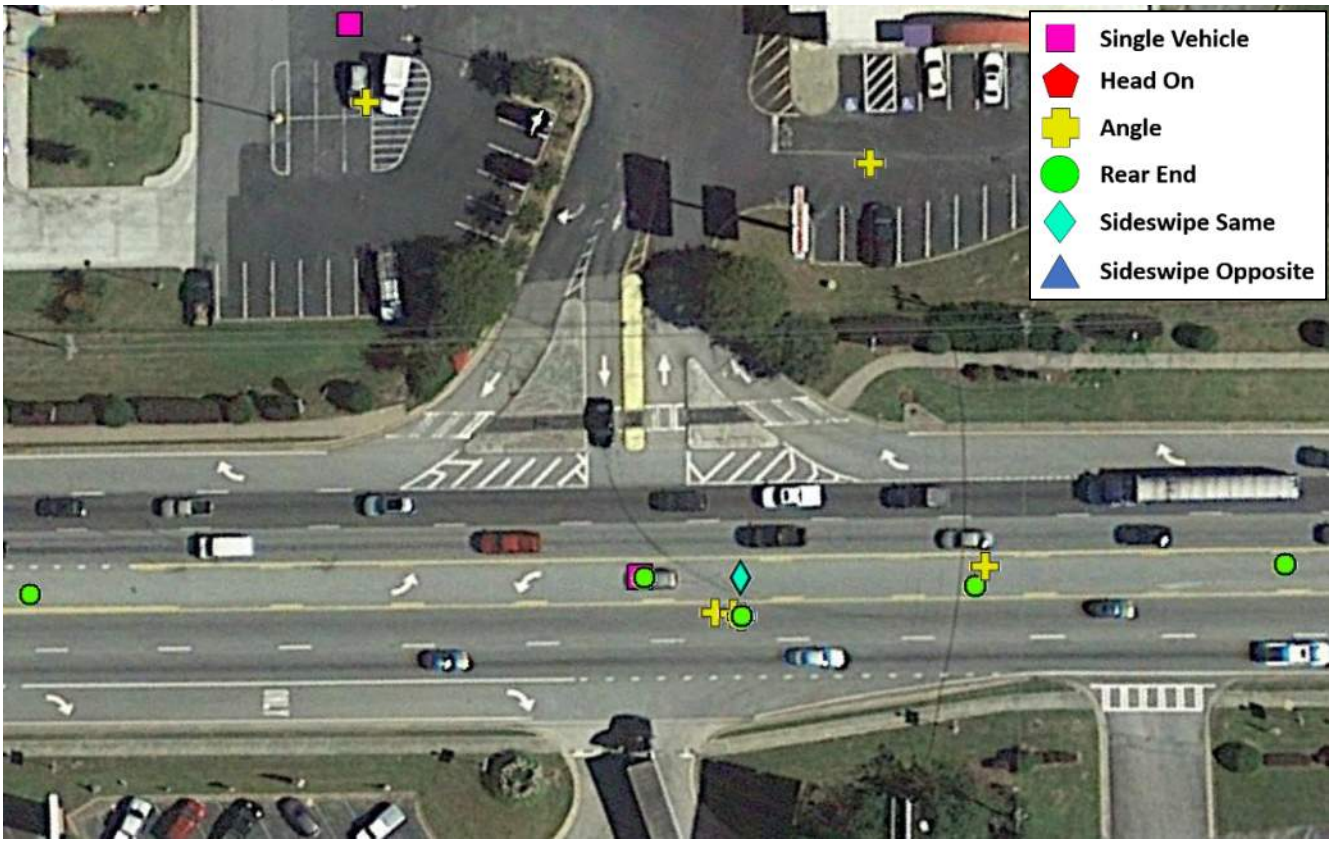
Sonny's BBQ Intersection



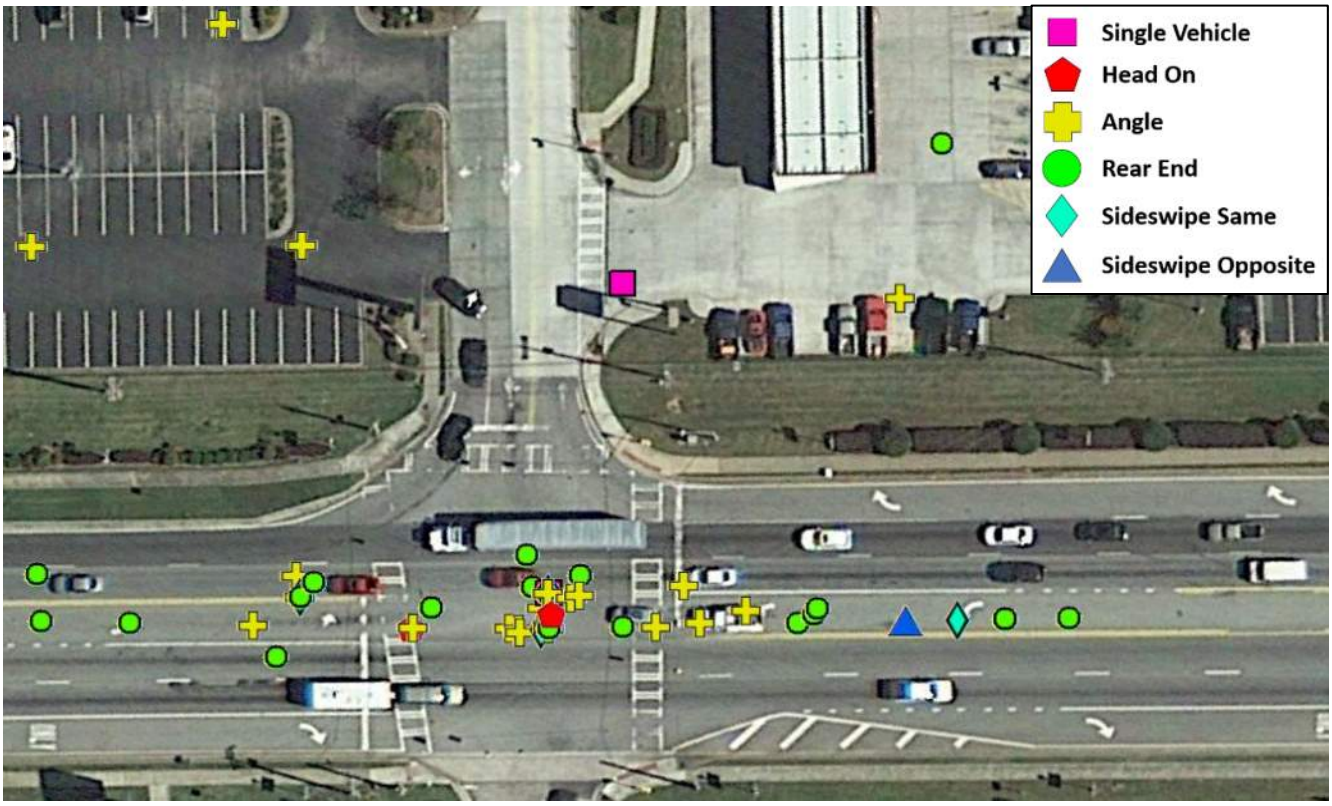
SR-15 & Industrial Park Intersection



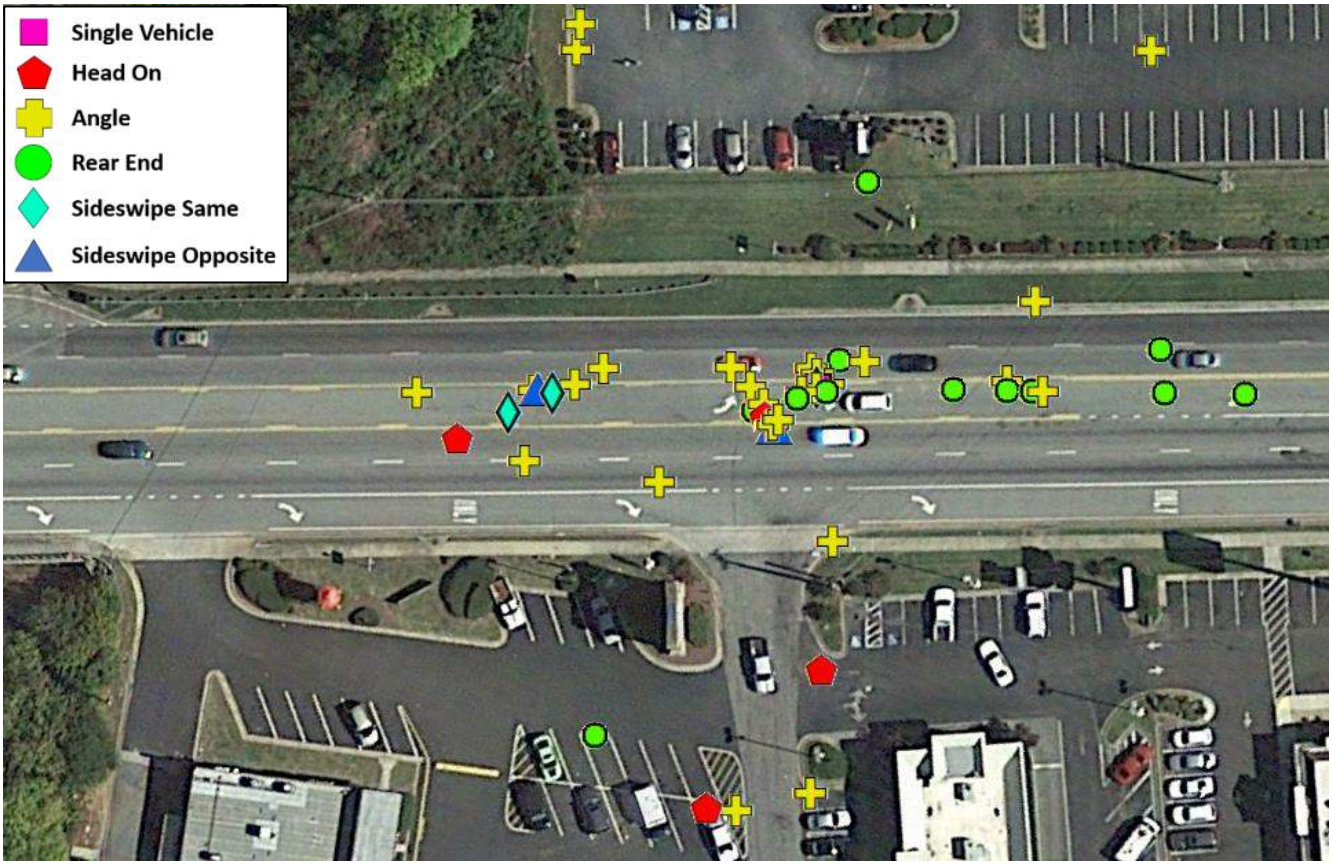
SR-15 & Banks Crossing Intersection



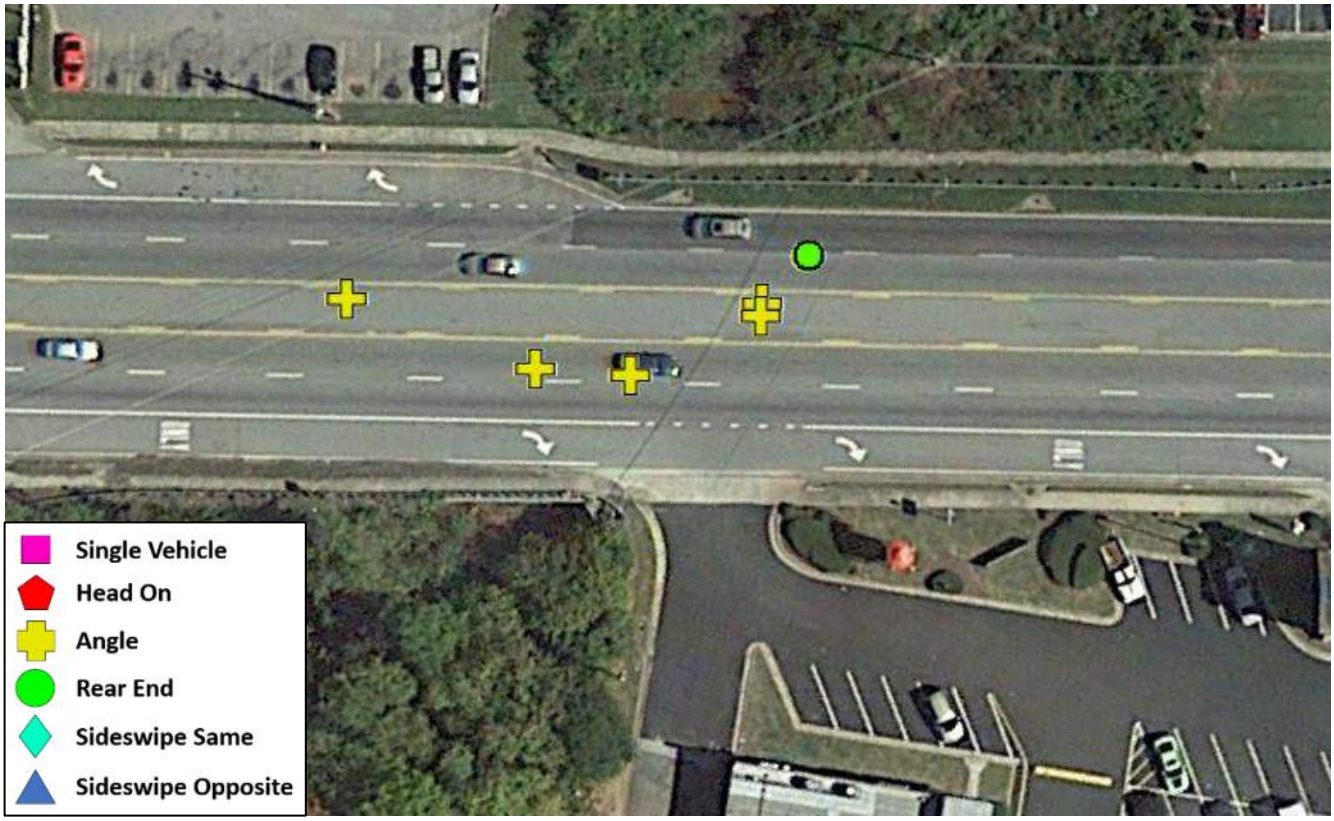
SR-15 & Pottery Factory Drive Intersection



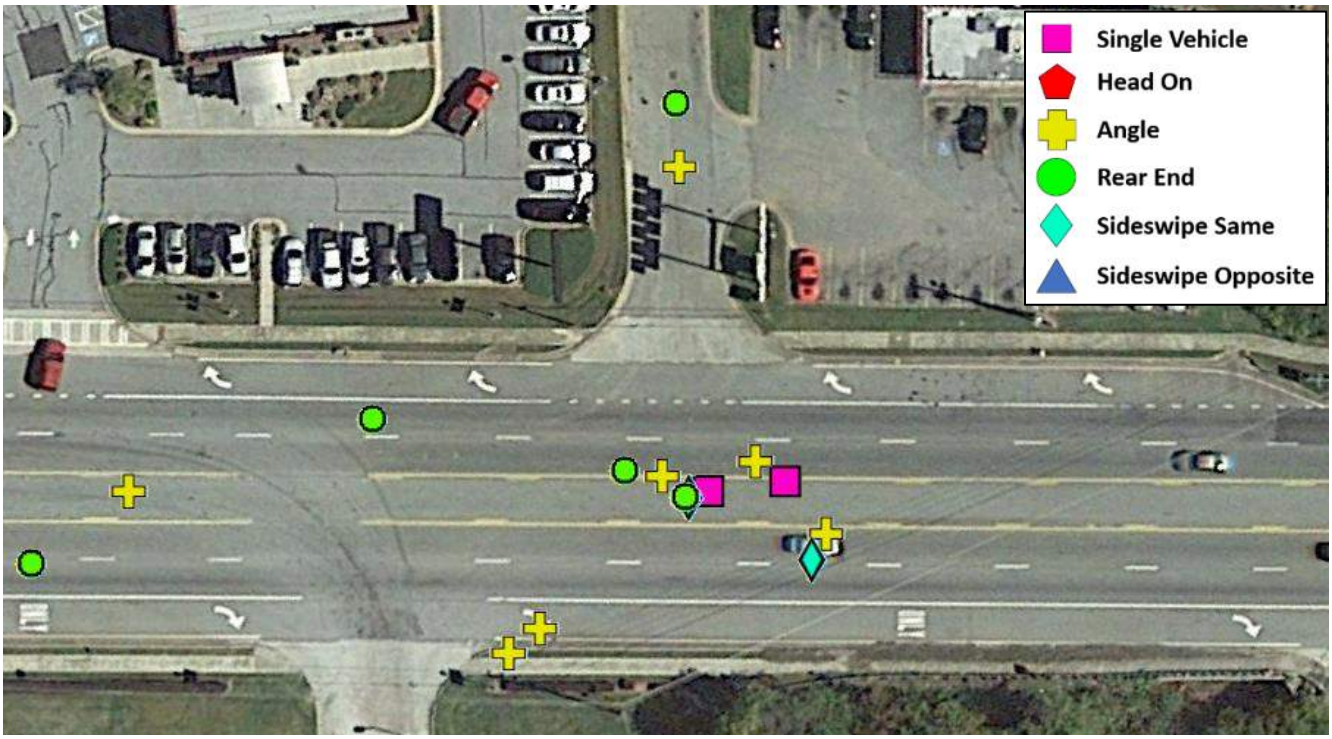
SR-15 & Commerce Crossing Intersection



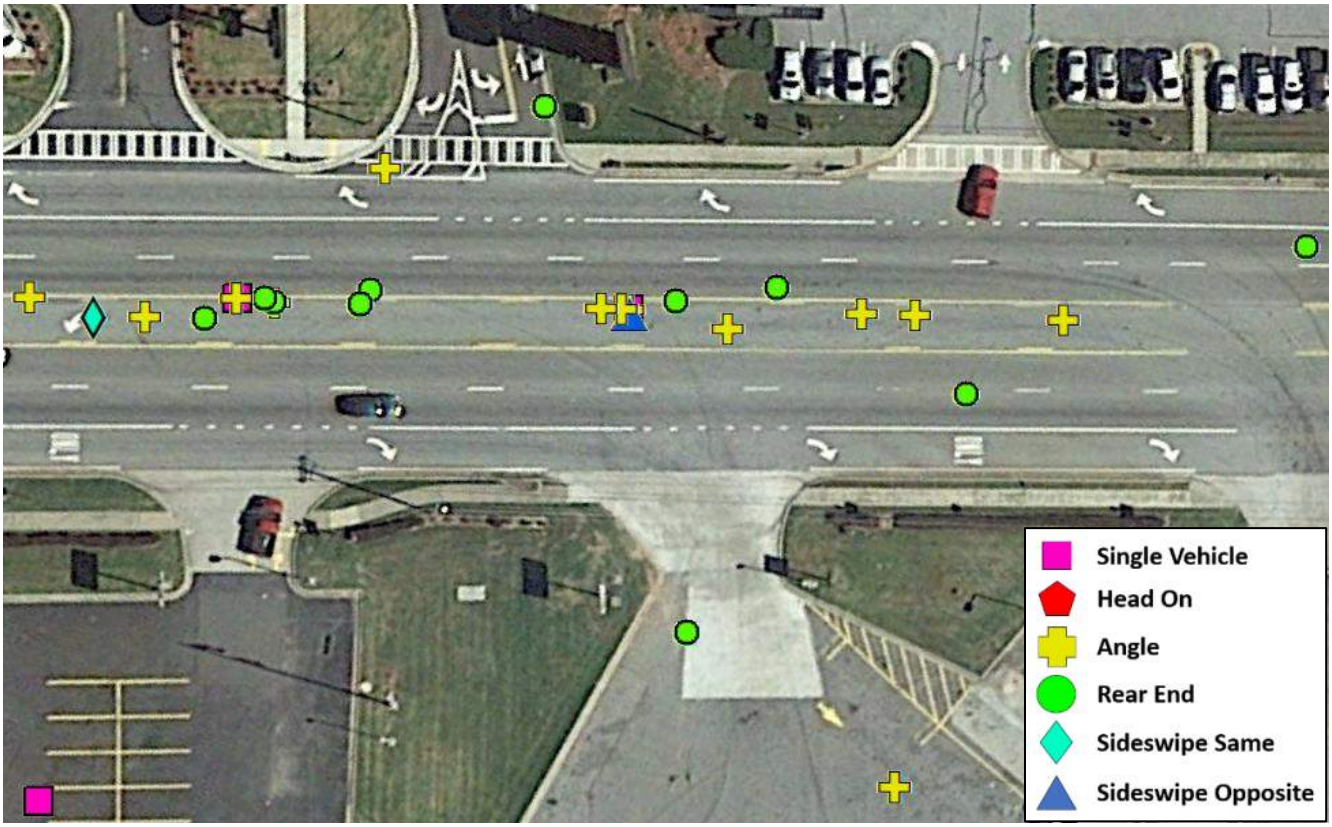
Commerce Crossing to Hampton Court



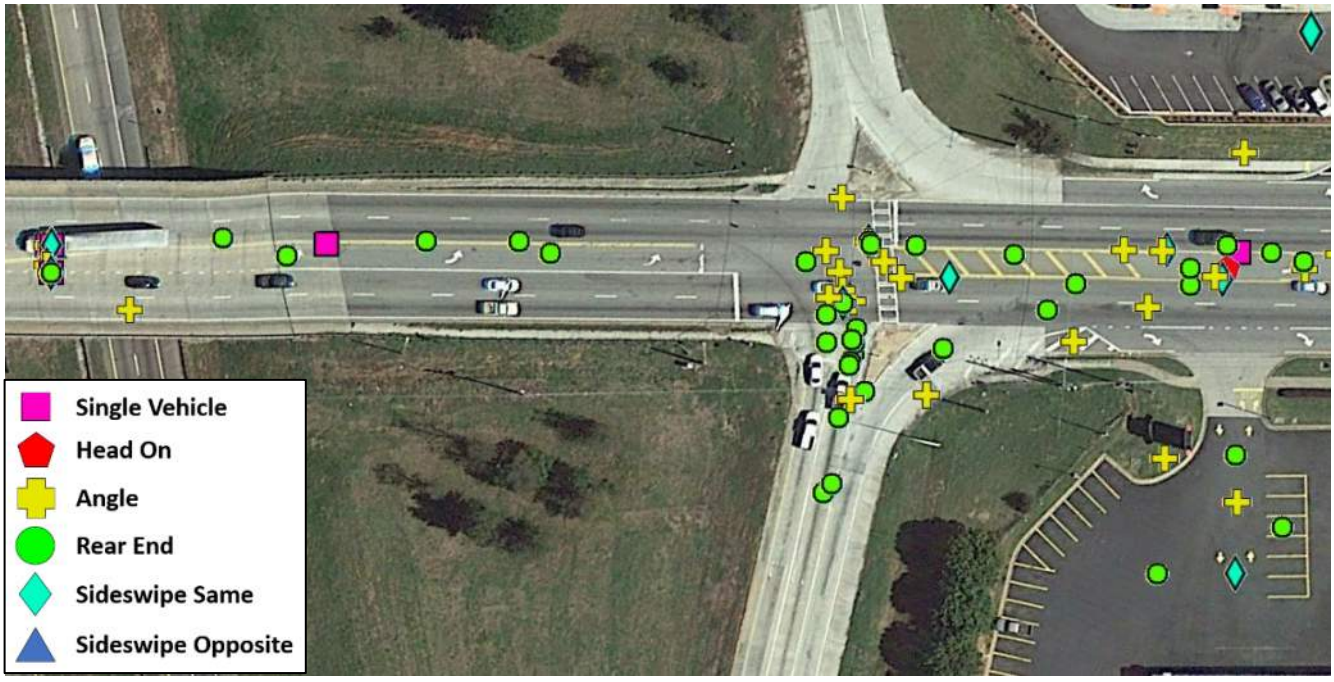
SR-15 & Hampton Court Intersection



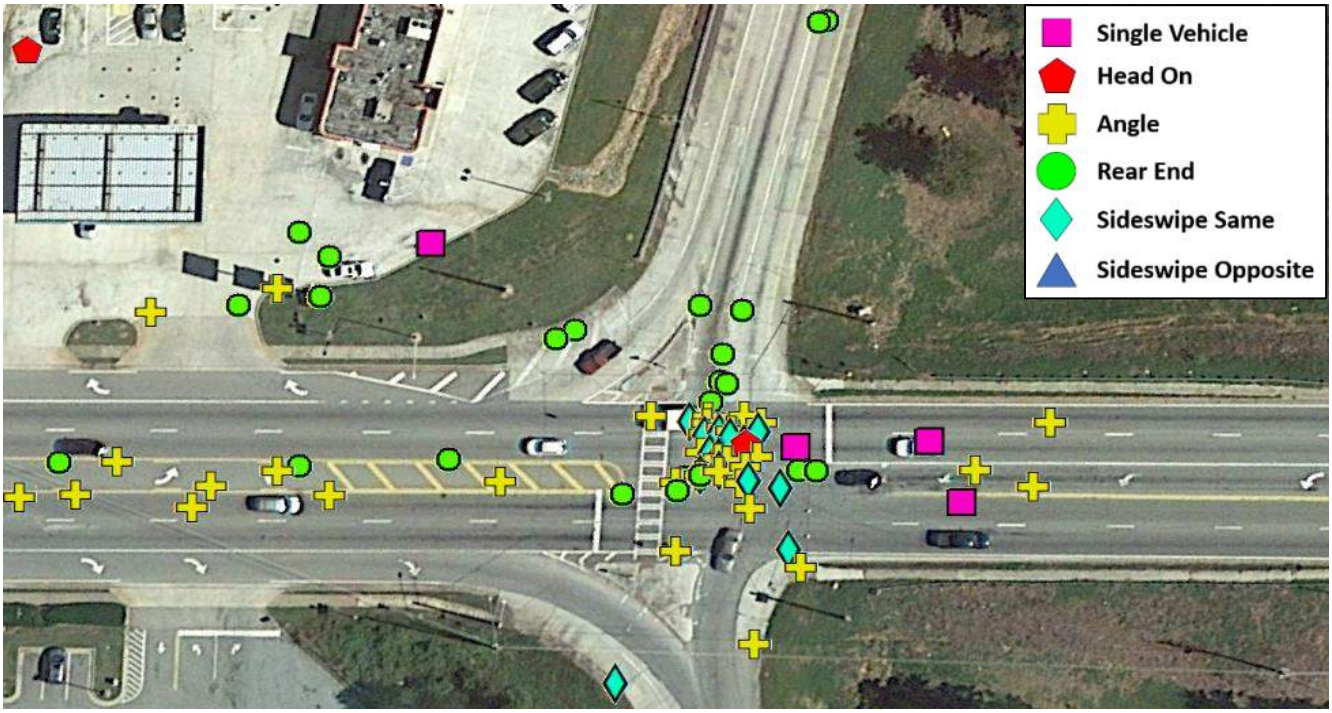
SR-15 & Red Roof Inn Intersection



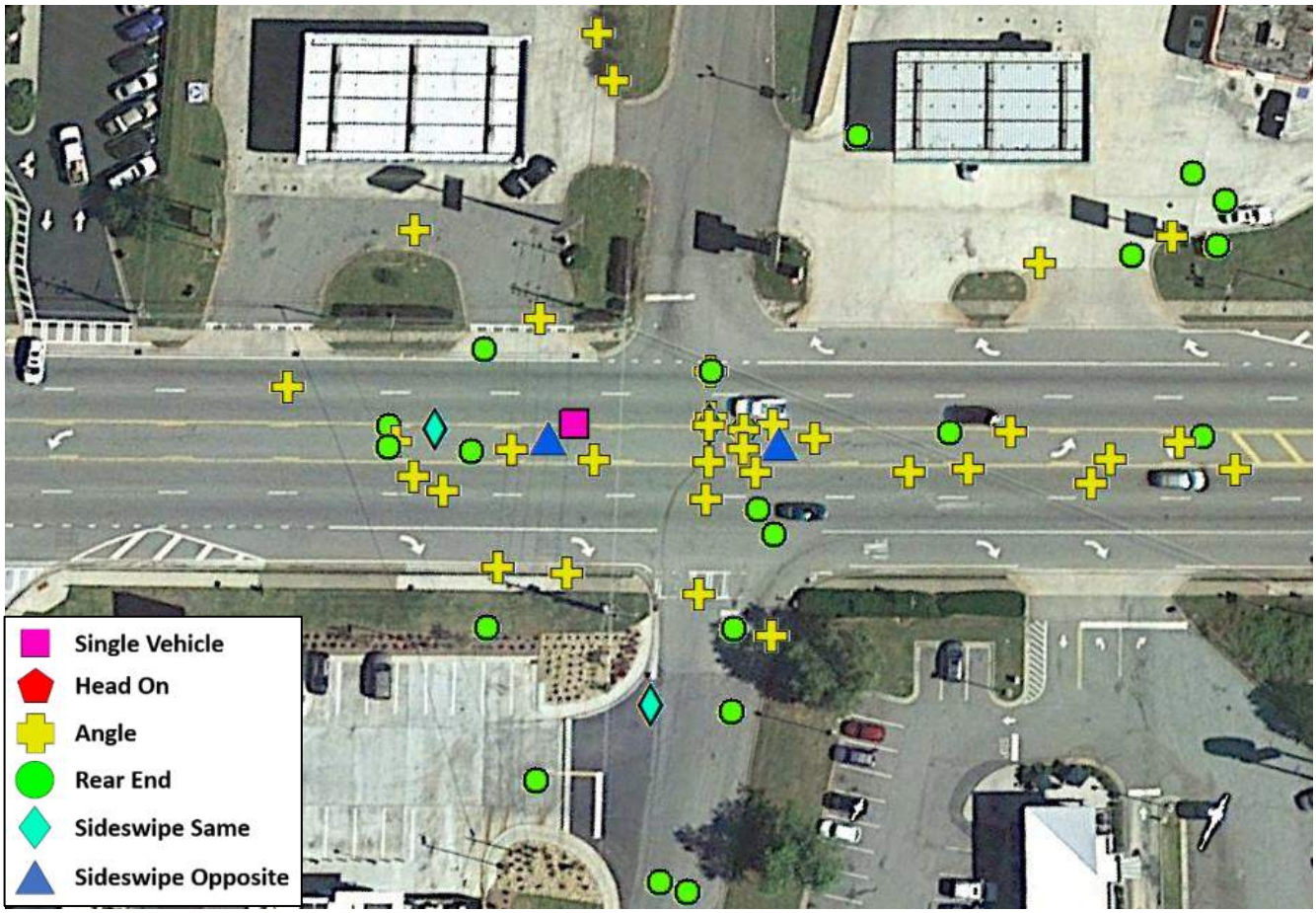
SR-15 & I-85 Northbound Ramp Intersection



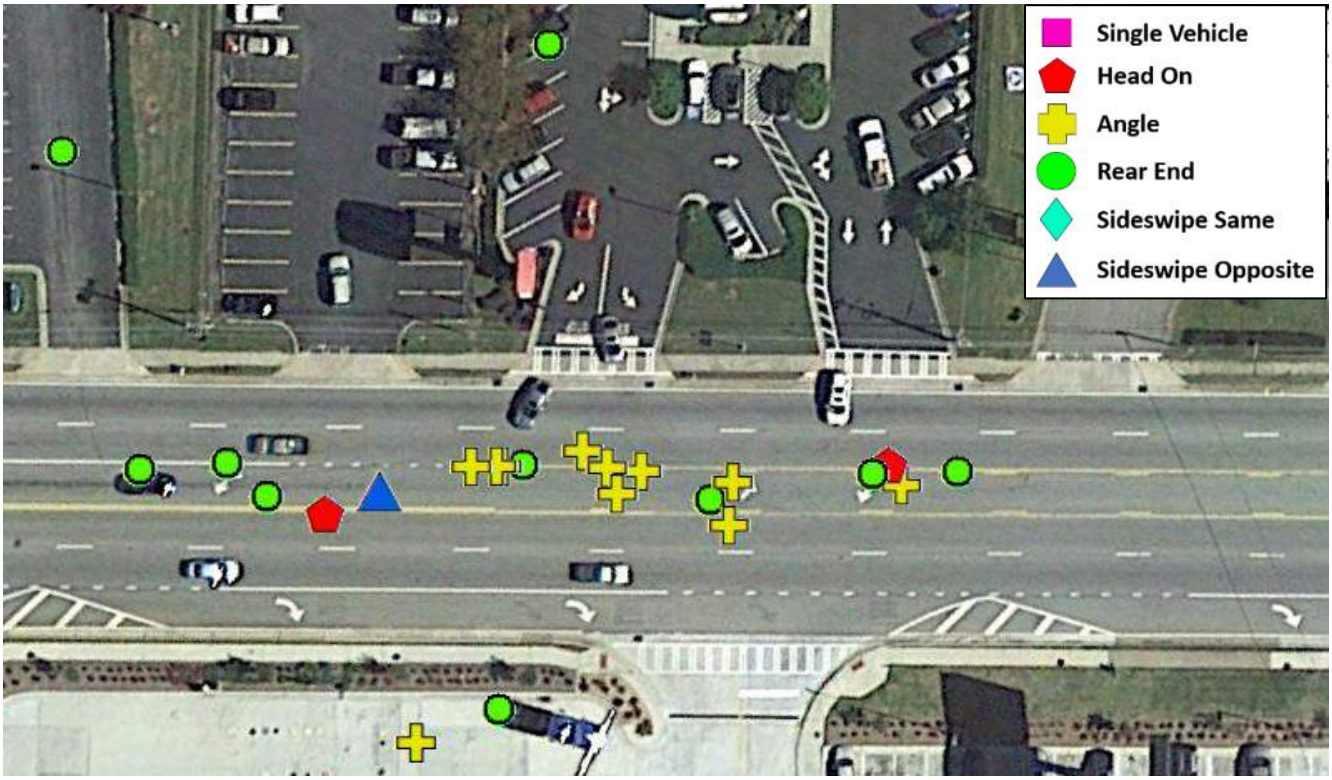
SR-15 & I-85 Southbound Ramp Intersection



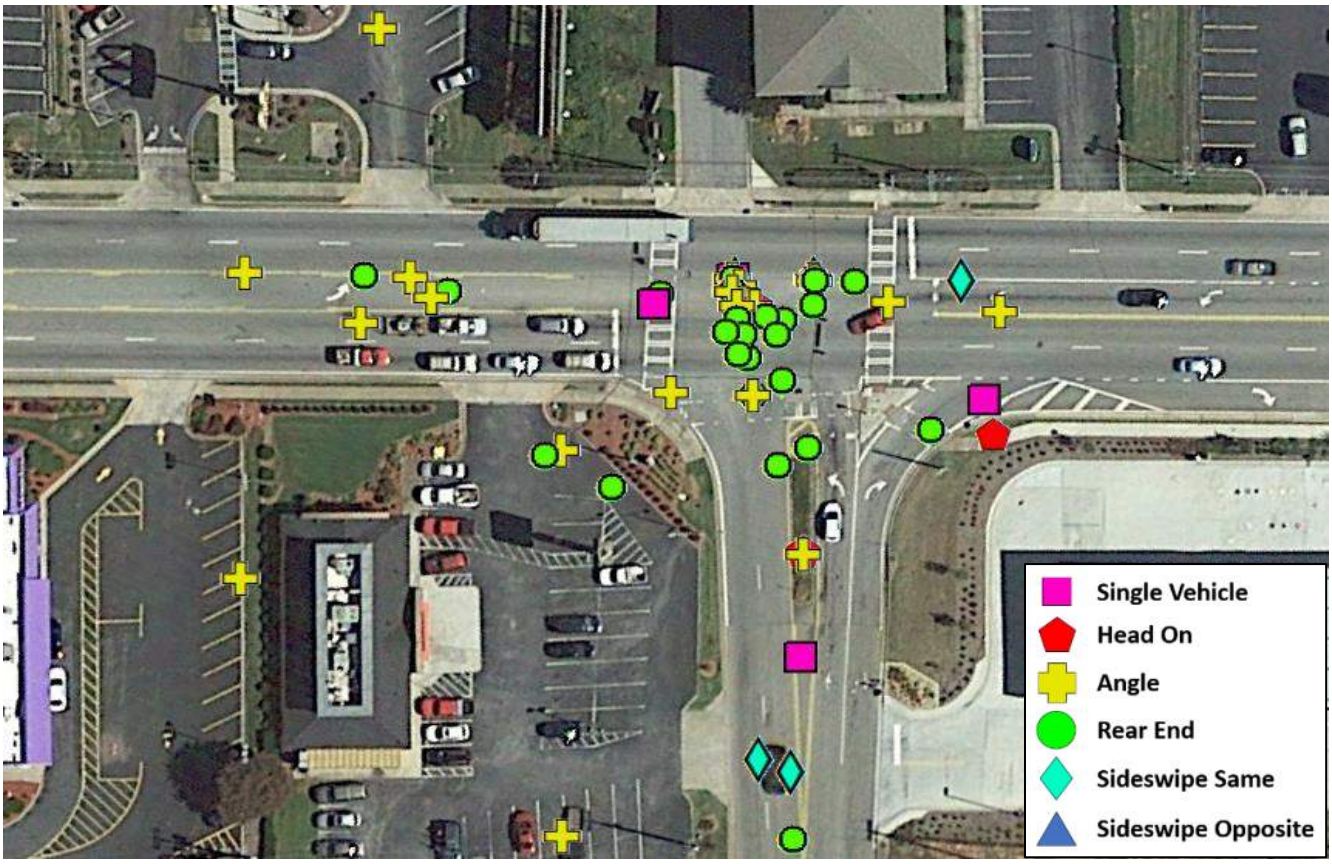
SR-15 & Eisenhower Drive Intersection



Eisenhower Drive to Steven B Tanger Boulevard Road Segment

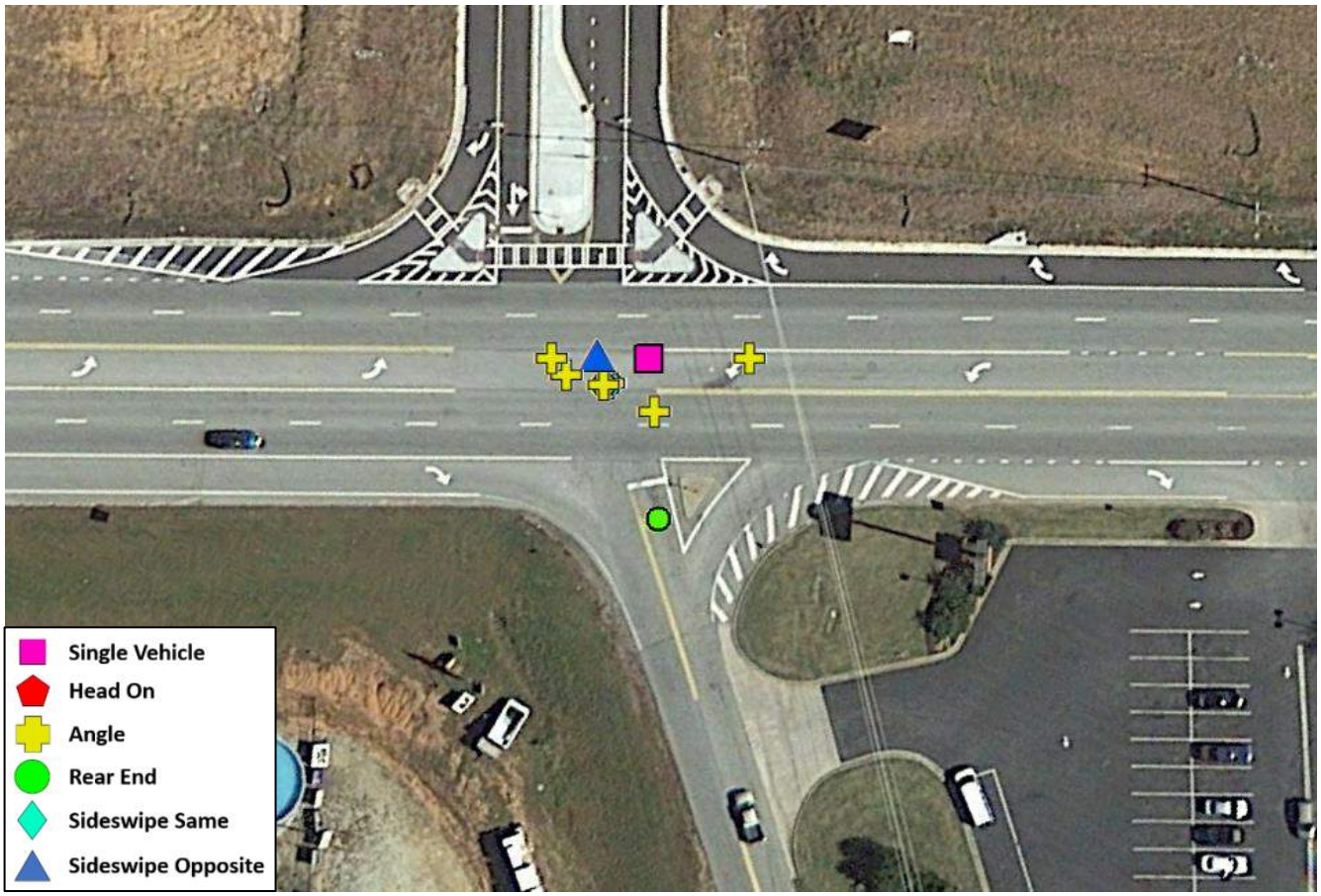


SR-15 & Steven B. Tanger Boulevard Intersection



Steven B Tanger Boulevard to Faulkner Rd. Road Segment

SR-15 & Faulkner Road Intersection



Appendix M: Conceptual Drawing of Faulkner Road Realignment